

Computing Wages

EXAMPLE

Hours	Rate	Solution: \$5.49
13	\$5.49	$\begin{array}{r} \times 13 \\ 1647 \\ + 549 \\ \hline \$71.37 \end{array}$
The answer is \$71.37.		

Directions Compute the wages for each example below.

Hours Worked	Rate	Wages	Hours Worked	Rate	Wages
1. 15	\$4.15	_____	20. 15	\$4.03	_____
2. 40	\$3.85	_____	21. 39	\$4.48	_____
3. 36	\$5.68	_____	22. 15	\$3.41	_____
4. 40	\$6.82	_____	23. 32	\$4.45	_____
5. 10	\$5.76	_____	24. 19	\$6.04	_____
6. 30	\$6.32	_____	25. 33	\$4.12	_____
7. 13	\$5.19	_____	26. 33	\$6.97	_____
8. 24	\$4.04	_____	27. 16	\$4.00	_____
9. 26	\$68.20	_____	28. 28	\$6.31	_____
10. 35	\$4.32	_____	29. 18	\$56.70	_____
11. 33	\$4.42	_____	30. 35	\$6.34	_____
12. 33	\$5.54	_____	31. 27	\$4.12	_____
13. 33	\$5.70	_____	32. 16	\$4.78	_____
14. 12	\$4.00	_____	33. 9	\$7.08	_____
15. 23	\$4.26	_____	34. 26	\$5.07	_____
16. 39	\$6.11	_____	35. 29	\$4.06	_____
17. 19	\$6.68	_____	36. 21	\$3.69	_____
18. 20	\$5.87	_____	37. 13	\$3.97	_____
19. 16	\$57.50	_____	38. 18	\$3.74	_____



Estimating Annual Wages

EXAMPLE

Hourly rate
\$13.48

Estimated hours worked in a year
2,000

Solution:

$$\begin{array}{r} \$13.48 \\ \times 2,000 \\ \hline \$26,960.00 \end{array}$$

The answer is \$26,960.

Directions Compute the annual wages for each example below.

Job Title	Hourly Rate	Annual Wages	Job Title	Hourly Rate	Annual Wages
1. Cook, fast food	\$6.54	_____	21. Pile driver operator	\$20.00	_____
2. Cook, institution	\$8.38	_____	22. Construction laborer	\$12.75	_____
3. Cook, restaurant	\$8.52	_____	23. Paving operator	\$13.99	_____
4. Cook, short order	\$7.14	_____	24. Floor layer	\$15.04	_____
5. Food attendant	\$6.70	_____	25. Carpenter's helper	\$10.20	_____
6. Dishwasher	\$6.78	_____	26. Electrician's helper	\$10.41	_____
7. Home health aide	\$9.04	_____	27. Painter's helper	\$9.73	_____
8. Nursing aide	\$8.59	_____	28. Roofer	\$14.36	_____
9. Pharmacy aide	\$9.14	_____	29. Telephone operator	\$12.88	_____
10. Veterinary assistant	\$8.03	_____	30. Payroll clerk	\$12.89	_____
11. Medical assistant	\$10.48	_____	31. Teller	\$8.81	_____
12. Dental assistant	\$11.60	_____	32. Receptionist	\$9.55	_____
13. Massage therapist	\$13.82	_____	33. Hotel desk clerk	\$7.79	_____
14. Physical therapy assistant	\$16.20	_____	34. Executive secretary	\$14.84	_____
15. Physical therapy aide	\$9.69	_____	35. Medical secretary	\$11.51	_____
16. Construction supervisor	\$21.98	_____	36. Legal secretary	\$15.48	_____
17. Boilermaker	\$18.51	_____	37. Computer operator	\$13.54	_____
18. Carpenter	\$16.55	_____	38. Word processor	\$11.67	_____
19. Carpet installer	\$15.26	_____	39. Desktop publisher	\$14.98	_____
20. Stonemason	\$16.46	_____	40. Proofreader	\$10.46	_____



Working with Time Cards

EXAMPLE

Joline is produce manager at a market. Yesterday she reported for work at 7:53 A.M. She went to lunch at 12:57 P.M. Joline returned to the market at 1:59 P.M. and left for home at 4:32 P.M. How long did Joline work?

Morning		Afternoon	
In	Out	In	Out
7:53	12:57	1:59	4:32

This is Joline's time card.

$$\begin{array}{r}
 \text{Solution: } 12:57 \\
 - 7:53 \\
 \hline
 5:04
 \end{array}
 +
 \begin{array}{r}
 4:32 \\
 - 1:59 \\
 \hline
 2:33
 \end{array}
 =
 \begin{array}{r}
 3:92 \\
 - 1:59 \\
 \hline
 2:33
 \end{array}
 = 7:37$$

(Rename 1 hour to 60 minutes. $32 + 60 = 92$ minutes.)

Joline worked 7 hours and 37 minutes.

Directions Compute the total time worked each day.

Morning		Afternoon		Time Worked	Morning		Afternoon		Time Worked		
In	Out	In	Out		In	Out	In	Out			
1.	7:15	11:16	12:05	6:10	_____	15.	6:34	11:41	1:29	5:45	_____
2.	6:27	11:41	1:27	6:49	_____	16.	7:22	12:05	2:46	4:48	_____
3.	7:12	12:51	1:24	3:41	_____	17.	6:19	10:29	11:16	4:22	_____
4.	7:47	11:14	12:19	3:14	_____	18.	8:21	1:48	2:15	7:17	_____
5.	8:51	12:30	2:43	7:11	_____	19.	6:58	10:20	12:58	4:10	_____
6.	7:55	12:57	1:26	4:34	_____	20.	6:02	10:44	12:26	3:20	_____
7.	8:55	1:44	3:55	5:23	_____	21.	7:46	11:18	1:48	5:16	_____
8.	8:14	12:24	2:25	5:47	_____	22.	6:04	11:28	1:20	3:46	_____
9.	7:02	12:31	1:34	4:53	_____	23.	8:29	1:35	2:35	5:43	_____
10.	8:15	1:02	3:16	7:13	_____	24.	7:04	12:44	2:51	5:39	_____
11.	6:07	11:06	1:47	5:15	_____	25.	7:19	11:10	12:11	3:12	_____
12.	7:14	11:22	1:15	4:51	_____	26.	7:11	12:27	2:34	5:01	_____
13.	6:58	11:44	1:06	3:36	_____	27.	7:48	12:00	1:00	6:35	_____
14.	8:29	1:12	3:24	7:20	_____	28.	7:54	12:46	2:16	5:30	_____



Overtime Rates

EXAMPLE Jamal earns \$6.65 per hour. What are his overtime rates?

Time and a half	Double time
\$ 6.65	\$ 6.65
$\times 1.5$	$\times 2$
<u>3 325</u>	<u>13 30</u>
$+ 6 65$	
<u>\$ 9.975</u>	

Jamal's time and a half rate is \$9.975 and his double time rate is \$13.30.

Directions Find the time and a half and the double time rates for each hourly rate. Do not round answers.

Hourly Rate	Overtime Rates		Hourly Rate	Overtime Rates	
	Time and a Half	Double Time		Time and a Half	Double Time
1. \$7.17	_____	_____	11. \$24.88	_____	_____
2. \$8.70	_____	_____	12. \$17.90	_____	_____
3. \$7.35	_____	_____	13. \$26.96	_____	_____
4. \$12.70	_____	_____	14. \$29.88	_____	_____
5. \$10.50	_____	_____	15. \$11.52	_____	_____
6. \$8.22	_____	_____	16. \$20.02	_____	_____
7. \$11.08	_____	_____	17. \$13.45	_____	_____
8. \$13.66	_____	_____	18. \$19.45	_____	_____
9. \$11.93	_____	_____	19. \$19.21	_____	_____
10. \$6.75	_____	_____	20. \$18.63	_____	_____



Working Overtime

EXAMPLE

George, a clerk, earns \$6.32 per hour for a 40-hour week. After 40 hours he earns time and a half. Last week he worked 53 hours. He computed his pay:

Step 1:

$$\begin{array}{r} \$ 6.32 \text{ Hourly Rate} \\ \times 40 \text{ Hours} \\ \hline \$252.80 \text{ Regular Wages} \end{array}$$

Step 2:

$$\begin{array}{r} \$ 6.32 \text{ Hourly Rate} \\ \times 1.5 \text{ (Time and a half)} \\ \hline 3160 \\ +632 \\ \hline \$9.480 \text{ Overtime Rate} \end{array}$$

Step 3:

$$\begin{array}{r} \$ 9.48 \text{ Overtime Rate} \\ \times 13 \text{ Overtime Hours} \\ \hline 2844 \\ +948 \\ \hline \$123.24 \text{ Overtime Wages} \end{array}$$

Step 4:

$$\begin{array}{r} \$252.80 \text{ Regular Wages} \\ +123.24 \text{ Overtime Wages} \\ \hline \$376.04 \text{ Total Wages} \end{array}$$

George earned \$376.04.

Directions Compute the total wages. Use time and a half for any time over 40 hours. Do not round any answers.

Hours Worked	Rate	Total Wages	Hours Worked	Rate	Total Wages
1. 42	\$8.00	_____	14. 62	\$6.22	_____
2. 41	\$6.65	_____	15. 44	\$18.41	_____
3. 69	\$5.82	_____	16. 80	\$6.76	_____
4. 77	\$5.78	_____	17. 94	\$5.25	_____
5. 76	\$6.57	_____	18. 72	\$5.96	_____
6. 94	\$6.81	_____	19. 76	\$7.46	_____
7. 51	\$5.29	_____	20. 68	\$14.31	_____
8. 101	\$5.50	_____	21. 64	\$7.54	_____
9. 96	\$6.38	_____	22. 64	\$5.54	_____
10. 80	\$5.36	_____	23. 77	\$7.73	_____
11. 96	\$13.70	_____	24. 70	\$7.62	_____
12. 56	\$4.90	_____	25. 86	\$6.98	_____
13. 66	\$4.20	_____	26. 44	\$5.70	_____



Compute Earnings that Include Tips

EXAMPLE

Shasta delivers flowers. She earns \$5.15 an hour plus tips. In one 40-hour workweek she earned \$153.00 in tips. Find her total income for the week.

Step 1: Find weekly wages

$$\begin{array}{r} \$5.15 \text{ Hourly wage} \\ \times \quad 40 \text{ Hours worked} \\ \hline \$206.00 \text{ Weekly wages} \end{array}$$

Step 2: Add tips to weekly wages

$$\begin{array}{r} \$206.00 \text{ Weekly wages} \\ + 153.00 \text{ Tips} \\ \hline \$359.00 \text{ Total income} \end{array}$$

Shasta's total income is \$359.00

Directions Compute the answers to these problems. Write your answer on the line.

- Sharmaine works 30 hours at an exclusive restaurant. She earns \$3.50 per hour plus tips. In one week, she earned \$1,250.00 in tips. What was Sharmaine's total income? _____
- Eldon helps people load their groceries into their cars at the grocery store. The grocery store pays him \$5.15 per hour. In one week he worked 38 hours and earned \$425.00 in tips. What was his total income? _____
- Cybil delivers food for an Asian carryout. She works 28 hours per week for \$3.50 per hour. In a particular week she earned \$240.00 in tips. What was her total income that week? _____
- Arquette is a caddy at the country club. He has no hourly wage. His only income is from tips. In a given week he was tipped by 12 golfers: \$20, \$15, \$10, \$15, \$25, \$10, \$15, \$22, \$18, \$15, \$20, \$20. What did he earn that week? _____
- Lucinda is a baby sitter. Her hourly rate is \$5.00. In one week she baby sat 13 hours and received tips of \$14.50. How much did she earn? _____
- Martin is a hair stylist. He averages a weekly wage of \$240 and usually gets another \$356 in tips. What is his average total income? _____
- Ansel is a maid at the hotel. He receives tips from the guests at the ends of their stay. One week he earned \$452.67 in tips and \$5.23 per hour for 40 hours. What did he earn? _____



Weekly Wages for Piecework

EXAMPLE

Carol makes jewelry. She earns \$0.78 for each piece that she makes. How much will she earn this week?

Daily Production				
<i>M</i>	<i>T</i>	<i>W</i>	<i>Th</i>	<i>F</i>
49	57	63	42	54

Piece Rate
\$0.78

Solution:

49
57
63
42
+ 54
265

Weekly production

265	Weekly production	
×	\$0.78	Piece rate
2120		
+ 1885		
\$206.70		

Wages

Carol will earn \$206.70.

Directions Compute the wages for each example below.

	Daily Production					Piece Rate	Wages
	M	T	W	Th	F		
1.	37	38	34	38	35	\$1.00	_____
2.	10	11	11	9	12	\$3.12	_____
3.	16	14	15	14	14	\$3.01	_____
4.	31	32	33	32	34	\$1.05	_____
5.	9	10	10	9	8	\$2.91	_____
6.	8	6	7	6	9	\$4.25	_____
7.	19	18	18	18	15	\$2.50	_____
8.	13	14	11	13	11	\$2.72	_____
9.	14	13	13	12	14	\$3.68	_____
10.	17	20	21	19	20	\$1.88	_____
11.	12	16	17	16	15	\$2.76	_____
12.	6	7	6	7	7	\$3.66	_____
13.	22	20	19	21	17	\$2.44	_____
14.	15	16	14	17	17	\$1.76	_____

Rounding Money

EXAMPLE

Sally wants to leave a tip for the good service. Her bill is \$23.78. A customary 15% tip is \$3.567. Round to the nearest cent, dime and dollar.

	Key Digit	Add 1?	Drop remaining digits.
Cent:	\$3.567	\$3.577	\$3.57
Dime:	\$3.567	\$3.667	\$3.60
Dollar:	\$3.567	\$4.567	\$4.00

Sally may leave a tip of \$3.57, \$3.60 or \$4.00

Directions Round each amount to the nearest cent, dime and dollar.

	Cent	Key Digit Dime	Dollar		Cent	Key Digit Dime	Dollar
1.	\$12.3456	\$12.35	\$12.30	\$12	11.	\$4.28532	_____
2.	\$32.518	_____	_____	_____	12.	\$34.5561	_____
3.	\$10.334	_____	_____	_____	13.	\$504.729	_____
4.	\$28.5361	_____	_____	_____	14.	\$11.4981	_____
5.	\$67.0081	_____	_____	_____	15.	\$125.873	_____
6.	\$123.991	_____	_____	_____	16.	\$39.0206	_____
7.	\$83.996	_____	_____	_____	17.	\$62.5820	_____
8.	\$0.789	_____	_____	_____	18.	\$0.5432	_____
9.	\$0.899	_____	_____	_____	19.	\$0.4532	_____
10.	\$44.4444	_____	_____	_____	20.	\$831.38576	_____

Directions: Round each amount to the next cent, dime and dollar.

	Cent	Key Digit Dime	Dollar		Cent	Key Digit Dime	Dollar
21.	\$12.3456	_____	_____	_____	25.	\$67.0081	_____
22.	\$32.518	_____	_____	_____	26.	\$4.28532	_____
23.	\$10.334	_____	_____	_____	27.	\$34.5561	_____
24.	\$28.5361	_____	_____	_____	28.	\$504.729	_____





Salary

EXAMPLE Wynell is quoted an annual salary of \$52,000.00. He has the option of several pay periods. Find the amount he would receive in each pay period.

Pay Period	Weekly	Biweekly	Semimonthly	Monthly	Quarterly	Semiannually
Number of pays	52	26	24	12	4	2
	\$1,000.00	\$2,000.00	\$2,166.67	\$4,333.33	\$13,000.00	\$26,000.00
	52) \$52,000.00	26) \$52,000.00	24) \$52,000.00	12) \$52,000.00	4) \$52,000.00	2) \$52,000.00

Wynell is paid either \$1,000.00 weekly, \$2,000.00 biweekly, \$2,166.67 semimonthly, \$4,333.33 monthly, \$13,000.00 quarterly or \$26,000.00 semiannually.

Directions Complete the following chart. Find the amount earned during each pay period. Round answers to the nearest cent.

Worker	Annual Salary	Weekly 52 pay periods	Biweekly 26 pay periods	Semi-monthly 24 pay periods	Monthly 12 pay periods	Quarterly 4 pay periods	Semi-annually 2 pay periods
1. Jacob	\$15,600	_____	_____	_____	_____	_____	_____
2. Matthew	\$31,200	_____	_____	_____	_____	_____	_____
3. Joshua	\$78,000	_____	_____	_____	_____	_____	_____
4. Madison	\$10,920	_____	_____	_____	_____	_____	_____
5. Hannah	\$140,400	_____	_____	_____	_____	_____	_____
6. Samantha	\$93,600	_____	_____	_____	_____	_____	_____
7. Andrew	\$35,000	_____	_____	_____	_____	_____	_____
8. Ashley	\$90,000	_____	_____	_____	_____	_____	_____
9. Michael	\$27,430	_____	_____	_____	_____	_____	_____
10. Emily	\$44,358	_____	_____	_____	_____	_____	_____

Name _____

Date _____

Period _____

Renaming Percents as Decimals

Method: Remove the percent symbol and move the decimal point two places to the left.

EXAMPLE Rename 45% as a decimal.

$$45\% = 0.45$$

EXAMPLE Rename 2.4% as a decimal.

$$2.4\% = 0.024$$

EXAMPLE Rename $13\frac{1}{7}\%$ as a decimal.

$$13\frac{1}{7}\% = 0.13\frac{1}{7}$$

Write a zero to make two places.

Directions Rename these percents as decimals.

- | | | | |
|------------------------|---------------------------|-------------------------|--------------|
| 1. 35% = | 13. 2% = | 25. 453% = | 37. 7.11% = |
| 2. 28% = | 14. 93% = | 26. $35\frac{1}{2}\%$ = | 38. 34.4% = |
| 3. 5% = | 15. 38% = | 27. 1% = | 39. 0.79% = |
| 4. 2.6% = | 16. 0.08% = | 28. 60% = | 40. 12% = |
| 5. 4% = | 17. 6.01% = | 29. 77% = | 41. 5.055% = |
| 6. 1.2% = | 18. 77.1% = | 30. 5.09% = | 42. 2.21% = |
| 7. 0.1% = | 19. 5.3% = | 31. 8.11% = | 43. 681% = |
| 8. 4.01% = | 20. $3.01\frac{2}{3}\%$ = | 32. 129% = | 44. 0.01% = |
| 9. $26\frac{5}{8}\%$ = | 21. 48% = | 33. 20% = | 45. 3% = |
| 10. 8.2% = | 22. 6% = | 34. 400% = | 46. 100% = |
| 11. 9% = | 23. 7.001% = | 35. 0.03% = | 47. 2000% = |
| 12. 0.33% = | 24. 0.05% = | 36. $40\frac{3}{4}\%$ = | 48. 0.004% = |



Earning Commission

EXAMPLE

Santiago sells furniture. He earns a 10% commission on his sales up to his quota of \$2,500. Santiago earns a 14% commission on all sales beyond \$2,500. Last week his sales were \$4,966. How much did Santiago earn?

<i>Quota</i>	<i>Rate</i>	<i>Sales</i>	<i>Bonus Rate</i>
\$2,500	10%	\$4,966	14%
Step 1:		Step 2:	
\$ 2,5 00		\$ 4,966	
× .10 Regular		− 2,500	
<u>\$250.00</u> Commission		\$ 2,466	
		Step 3:	
		\$ 2,4 66	
		× .14	
		<u>98 64</u>	
		+246 6	
		\$345.24 Bonus Commission	
		Step 4:	
		\$250.00 Regular Commission	
		+345.24 Bonus Commission	
		<u>\$595.24</u> Total Commission	

Santiago earned \$595.24.

Directions Compute the total commission for each example below. Add the bonus commission to the regular commission.

	Quota	Rate	Sales	Bonus Rate	Total Commission
1.	\$5,300	11%	\$5,783	21%	_____
2.	\$8,700	6%	\$14,536	17%	_____
3.	\$1,600	11%	\$1,889	13%	_____
4.	\$5,600	8%	\$9,490	15%	_____
5.	\$9,400	10%	\$11,447	14%	_____
6.	\$4,500	5%	\$7,730	13%	_____
7.	\$8,800	4%	\$10,317	7%	_____
8.	\$4,600	2%	\$7,377	4%	_____
9.	\$2,500	8%	\$3,795	10%	_____
10.	\$1,900	8%	\$2,021	10%	_____
11.	\$4,600	9%	\$8,365	15%	_____
12.	\$8,800	3%	\$3,848	10%	_____
13.	\$4,400	5%	\$8,161	11%	_____
14.	\$7,000	9%	\$9,471	13%	_____



Salary Plus Commission

EXAMPLE

Armand sells automobiles. He earns a weekly salary of \$156 plus a commission of 0.4% on all his sales. Last week his sales were \$153,782. What did he earn?

Step 1

$$\begin{array}{r} \$153,782 \text{ Sales} \\ \times \quad .004 \text{ Rate of commission} \\ \hline \$615.128 \text{ Commission} \end{array}$$

Step 2

$$\begin{array}{r} \$156.00 \text{ Salary} \\ + 615.13 \text{ Commission} \\ \hline \$771.13 \text{ Total earnings} \end{array}$$

Armand's total earnings were \$771.13.

Directions Find the commission and total earnings for the sales listed below.

	Total Sales	Rate of Commission	Salary Earned	Commission	Total Earnings
1.	\$50,000	2%	\$200	_____	_____
2.	\$31,000	3%	\$100	_____	_____
3.	\$45,000	2.4%	\$150	_____	_____
4.	\$450,000	1.5%	\$125	_____	_____
5.	\$61,129	2.8%	\$250	_____	_____
6.	\$64,732	3.2%	\$100	_____	_____
7.	\$63,794	1.9%	\$150	_____	_____
8.	\$19,376	2.45%	\$100	_____	_____
9.	\$90,276	3.27%	\$260	_____	_____
10.	\$37,385	2.87%	\$170	_____	_____
11.	\$17,396	1.67%	\$350	_____	_____
12.	\$3,945	2.34%	\$160	_____	_____
13.	\$323,386	1.91%	\$140	_____	_____
14.	\$32,784	4.03%	\$200	_____	_____
15.	\$1,357,369	0.42%	\$100	_____	_____
16.	\$29,864	2.73%	\$200	_____	_____
17.	\$98,773	1.42%	\$250	_____	_____
18.	\$76,764	3.12%	\$100	_____	_____
19.	\$18,363	1.44%	\$230	_____	_____
20.	\$94,735	2.61%	\$170	_____	_____



Addition of Decimals

EXAMPLE $3 + 2.4 + 0.06 =$

Write this:

$$\begin{array}{r} 3 \\ 2.4 \\ + .06 \\ \hline 5.46 \end{array} \quad \text{OR} \quad \begin{array}{r} 3.00 \\ 2.40 \\ + 0.06 \\ \hline 5.46 \end{array}$$

EXAMPLE $4 + 0.35 + 1.082 =$

Write this:

$$\begin{array}{r} 4.000 \\ 0.350 \\ + 1.082 \\ \hline 5.432 \end{array}$$

Helpful Hints

- Remember that the number 3 can be expressed as a decimal, that is, 3.0 or 3.00.
- Remember that the decimal points must be lined up before you begin to add.
- Remember to place the decimal point in the sum as shown in the examples.
- Remember to place zeros in the addends to help with the addition.

Directions Add. Place zeros in the addends.

1. $\begin{array}{r} 3.00 \\ 2.93 \\ + 0.78 \\ \hline \end{array}$

4. $\begin{array}{r} 1.026 \\ 4.56 \\ 63.0071 \\ + 101.0000 \\ \hline \end{array}$

7. $\begin{array}{r} .506 \\ 41.0033 \\ 9.1 \\ + 61.0000 \\ \hline \end{array}$

10. $\begin{array}{r} 923.1 \\ 73.12 \\ 7.00002 \\ + 000.64000 \\ \hline \end{array}$

2. $\begin{array}{r} 4.00 \\ 5.103 \\ 23.049 \\ + 02.9012 \\ \hline \end{array}$

5. $\begin{array}{r} 34.03 \\ 5.602 \\ 3.8401 \\ + 23.1000 \\ \hline \end{array}$

8. $\begin{array}{r} 6.3 \\ .037 \\ 7.0322 \\ + 82.9000 \\ \hline \end{array}$

11. $\begin{array}{r} 3.3 \\ .0093 \\ 73.00381 \\ + 2,920.08000 \\ \hline \end{array}$

3. $\begin{array}{r} 5.09 \\ 2.036 \\ + 90.345 \\ \hline \end{array}$

6. $\begin{array}{r} 6.7 \\ .347 \\ 9.62 \\ + 2.200 \\ \hline \end{array}$

9. $\begin{array}{r} 39.041 \\ 6.7 \\ 5.06 \\ + 74.000 \\ \hline \end{array}$

12. $\begin{array}{r} 402.1005 \\ 61.03 \\ 4.6 \\ + 022.3700 \\ \hline \end{array}$

Directions Write these in the vertical form and add.

13. $2.3 + 0.46 + 91.308 =$ _____

17. $5.8 + 1 + 0.406 =$ _____

14. $8 + 3.9 + 0.73 =$ _____

18. $66.02 + 8.1 + 5 =$ _____

15. $7.5 + 4.4 + 5 =$ _____

19. $8 + .702 + 32.1 =$ _____

16. $0.76 + 1.3 + 6 =$ _____

20. $63 + 4.56 + 5.8 =$ _____



Expressing Prices

EXAMPLE

Newspaper ads for food stores often report prices in both dollars and cents. To compare prices we must be able to express prices in both cents and dollars.

Express \$0.45 in cents.
 $\$0.45 = 45¢$

Express 89¢ in dollars.
 $89¢ = \$0.89$

EXAMPLE

Some prices are quoted in fractions of a cent, such as \$1.026. To express this amount in cents, move the decimal point two places to the right.

$\$1.026 = 102.6¢$

Directions Express these prices in dollars and cents. It is important to use the correct symbol in the price.

	Cents	Dollars		Cents	Dollars
1.	47¢	_____	11.	1.9¢	_____
2.	_____	\$0.52	12.	_____	\$0.005
3.	32¢	_____	13.	77.4¢	_____
4.	_____	\$1.79	14.	_____	\$0.0021
5.	_____	\$2.55	15.	9¢	_____
6.	59¢	_____	16.	_____	\$0.066
7.	_____	\$1.05	17.	.05¢	_____
8.	36¢	_____	18.	_____	1^{43}
9.	_____	\$0.04	19.	.78¢	_____
10.	5¢	_____	20.	_____	1^{56}



Reading Prices

EXAMPLE

It is not unusual to see food prices written without the dollar sign, \$, or the cents sign, ¢. Most of the time it is easy to understand what the price is.

A) 56¢ B) \$0.56 C) .56 All three prices mean fifty-six cents.

However, every so often a mistake is made and a price is listed incorrectly. In the following list, which price is not the same value as the other three?

A) 149¢ B) \$1.49 C) \$149 D) 1⁴⁹ E) 1.49

Price C is not the same. Price C represents one hundred and forty-nine dollars. Prices A, B, D and E all represent one hundred forty-nine cents.

Directions Write the letter of the price that is not equal to the other three.

	A	B	C	D	
1.	47¢	\$0.47	.47¢	.47	_____
2.	\$1.05	1.05¢	105¢	1 ⁰⁵	_____
3.	\$0.32	32¢	.32	\$32	_____
4.	.05¢	\$0.05	.05	5¢	_____
5.	.78	78¢	7.8¢	\$0.78	_____
6.	59¢	5.9¢	.59	\$.59	_____
7.	\$35	.35	\$0.35	35¢	_____
8.	86¢	8.6¢	.86	\$0.86	_____
9.	\$96	.96	\$0.96	96¢	_____
10.	5¢	.5¢	\$0.05	.05	_____
11.	\$1.07	\$107	1.07	1 ⁰⁷	_____
12.	5 ⁷⁹	\$5.79	\$0.579	5.79	_____
13.	5.99	\$5 ⁹⁹	\$599	\$5.99	_____
14.	\$2 ⁴⁹	2.49	\$2.49	\$249	_____
15.	9¢	.09	\$0.09	.09¢	_____
16.	\$3 ⁸⁸	388	\$388	\$3.88	_____



Adding Prices

EXAMPLE The fresh produce bin at the roadside stand posted these prices.

Broccoli	Cucumbers	Bananas	Cantaloupes	Lettuce	Apples
97¢ per lb	3 for 2 ⁹⁹	\$1 for 3 lb	2 for \$5	99¢ each	88¢ lb

Tarika purchased 2 lb broccoli, 3 lb bananas and 2 heads of lettuce.

How much do these items cost together?

Step 1 Write the decimal point in each price.

broccoli, 97¢ → \$0.97
 bananas, \$1 → \$1.00
 lettuce, 99¢ → \$0.99

Step 2 Find the multiples of each price

2 lb broccoli $2 \times .97 = \$1.94$
 3 lb bananas $1 \times 1.00 = \$1.00$
 2 heads lettuce $2 \times .99 = \$1.98$

Step 3 Add the prices

$$\begin{array}{r} \$1.94 \\ 1.00 \\ + 1.98 \\ \hline \$4.92 \end{array}$$

Tarika spent \$4.92 on this produce.

Directions From the chart find the price for each food item listed below.
 The find the total cost of each group of items.

- 3 lb broccoli
2 cantaloupes
1 lb apples _____
- 3 cucumbers
2 heads lettuce _____
- 6 lb bananas
1 head lettuce
3 cucumbers _____
- 1 lb broccoli
3 cucumbers
3 lb bananas
2 cantaloupes
1 head lettuce _____
- 6 lb apples
2 lb broccoli _____
- 9 lb bananas
4 heads lettuce
2 cantaloupes _____
- 4 lb apples
1 head lettuce
3 cucumbers _____
- 2 lb broccoli
3 lb apples
3 heads lettuce
6 cucumbers _____
- 3 lb bananas
10 cantaloupes
1 lb broccoli _____
- 4 cantaloupes
3 cucumbers _____
- 3 lb bananas
1 head lettuce
6 cucumbers _____
- 6 lb broccoli
3 cucumbers
3 lb bananas
2 cantaloupes
1 head lettuce _____
- 6 lb broccoli
3 lb bananas _____
- 4 lb broccoli
2 heads lettuce
4 lb apples _____
- 6 lb bananas
3 heads lettuce
12 cucumbers _____
- 2 lb apples
3 lb bananas
5 heads lettuce
15 cucumbers _____



Computing Change

EXAMPLE

Shaunna paid for purchases of \$16.95 with a \$20.00 bill.
Compute her change.

Shaunna's change was 1 nickel and 3 one-dollar bills.

Do not give more than

- 1 nickel,
- 2 dimes,
- 3 quarters,
- 4 pennies,
- 4 \$1-bills, or
- 1 \$5-bill.

Directions Compute the change for each of these purchases. The answer to Number 1 is 1 dime.

Purchase Price	Cash	Change
1. \$9.90	\$10	_____
2. \$7.69	\$8	_____
3. \$12.67	\$13	_____
4. \$2.02	\$5	_____
5. \$7.32	\$20	_____
6. \$11.12	\$20	_____
7. \$13.92	\$14	_____
8. \$13.03	\$14	_____
9. \$5.53	\$6	_____
10. \$9.10	\$10	_____
11. \$7.94	\$8	_____
12. \$8.52	\$20	_____
13. \$5.96	\$20	_____
14. \$6.90	\$20	_____
15. \$5.38	\$10	_____
16. \$12.21	\$20	_____
17. \$4.49	\$20	_____
18. \$7.81	\$8	_____
19. \$0.11	\$10	_____



Subtraction of Decimals

EXAMPLE $3.63 - 0.734 =$

Write this:
$$\begin{array}{r} 3.630 \leftarrow \text{Insert a zero here.} \\ - .734 \\ \hline 2.896 \end{array}$$

EXAMPLE $8 - 0.631 =$

Write this:
$$\begin{array}{r} 8.000 \leftarrow \text{Insert zeros here.} \\ - .631 \\ \hline 7.369 \end{array}$$

Helpful Hints

- Remember to fill places in the minuend and subtrahend with zeros when necessary.
- Remember to keep the decimal points lined up.

Directions Insert zeros and subtract.

1.
$$\begin{array}{r} 34.3 \\ - 5.64 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 48.22 \\ - 3.489 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 5.602 \\ - 4.0498 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 3 \\ - .0234 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 4 \\ - .349 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 39.4 \\ - .0371 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 81.923 \\ - 23.9047 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 74.73 \\ - 5.332 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 7.302 \\ - .83 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 10 \\ - 3.4005 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 38 \\ - .0273 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 7465.2 \\ - .9098 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 5.1 \\ - 1.204 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 356.748 \\ - 7.8 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 9 \\ - .9 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 37 \\ - 8.394 \\ \hline \end{array}$$

Directions Write these in the vertical form and subtract.

17. $23.4 - 4.56 =$ _____

21. $82 - 2.302 =$ _____

18. $4 - 0.48 =$ _____

22. $38.809 - 7.7081 =$ _____

19. $63.2 - 4.509 =$ _____

23. $9 - 3.4051 =$ _____

20. $16 - 1.34 =$ _____

24. $0.983 - 0.01023 =$ _____



Coupons for More than One

EXAMPLE

Karen has a coupon that offers a savings of \$1.25 on any two cartons of orange juice. Each carton is marked \$4.99. How much will the two cartons cost with the coupon?

Step 1 Multiply

$$\begin{array}{r} \$4.99 \\ \times 2 \\ \hline \$9.98 \end{array}$$

Step 2 Subtract

$$\begin{array}{r} \$9.98 \\ - 1.25 \\ \hline \$8.73 \end{array}$$

Directions For each set of items, find the cost when a coupon is used.

Item	Price for 1 Item	Coupon Value	Cost
1. Peanuts	\$0.99	25¢ on 2 bags	_____
2. Crackers	\$2.50	35¢ on 2 boxes	_____
3. Potato chips	\$1.79	30¢ on 2 bags	_____
4. Sliced American cheese	\$3.49	95¢ on 3 packs	_____
5. Gelatin	\$2.09	75¢ on 4 boxes	_____
6. Batteries	\$2.89	85¢ on 3 packs	_____
7. Italian bread	\$0.88	20¢ on 2 loaves	_____
8. Pasta	\$1.89	50¢ on 4 boxes	_____
9. Coffee	\$6.09	\$1.75 on 4 cans	_____
10. Paper towels	\$0.99	\$1.00 on 6 rolls	_____
11. Taco sauce	\$1.09	45¢ on 3 jars	_____
12. Mustard	\$1.59	70¢ on 4 jars	_____
13. Popcorn	\$2.59	\$1.00 on 5 boxes	_____
14. Zip-close bags	\$3.29	85¢ on 3 boxes	_____
15. Pasta sauce	\$1.29	75¢ on 5 jars	_____
16. Salad bar	\$2.79 per pound	55¢ on 2 lbs.	_____
17. Pancake mix	\$2.39	\$1.25 on 6 boxes	_____
18. Aluminum foil	\$3.19	80¢ on 3 rolls	_____
19. Oatmeal	\$1.89	25¢ on 2 packages	_____
20. Frozen dinners	\$3.49	\$1.10 on 4 dinners	_____



Pounds and Ounces

EXAMPLE

Luis is buying a can of tomatoes. There are many different sized cans in the store. Luis sees one containing 29 oz, another with 1 lb 12 oz. He wants to figure out which one is bigger.

Step 1 Write both weights in ounces

Recall 1 lb = 16 oz

1 lb 12 oz = 16 oz + 12 oz = 28 oz

Step 2 Compare the weights.

The weights are 29 oz and 28 oz

The can weighing 29 oz is bigger.

Directions Circle the largest weight in each problem. Circle them both if they are equal.

- 48 oz 2 lb 10 oz
- 32 oz 2 lb
- 1 lb 6 oz 24 oz
- 29 oz 2 lb
- 5 oz 5 lb
- 13 oz 1 lb
- 2 lb 36 oz
- 3 lb 5 oz 50 oz
- 10 lb 10 oz 160 oz
- 65 oz 4 lb 15 oz



Expiration Dates

EXAMPLE

Marty cut from the newspaper a coupon for diapers that expires at the end of October. If today's date is May 3, how much longer may he use the coupon? Since May has just begun, count it as one month. Count one month each for June, July, August, September and October. Marty has six months to use the coupon: May – October.

JANUARY							FEBRUARY							MARCH							APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
4	5	6	7	8	9	10	1	2	3	4	5	6	7	1	2	3	4	5	6	7	5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
11	12	13	14	15	16	17	8	9	10	11	12	13	14	8	9	10	11	12	13	14	12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
18	19	20	21	22	23	24	15	16	17	18	19	20	21	15	16	17	18	19	20	21	19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
25	26	27	28	29	30	31	22	23	24	25	26	27	28	22	23	24	25	26	27	28	26	27	28	29	30	24	25	26	27	28	29	30	28	29	30						
													29	30	31								31																		

JULY							AUGUST							SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
5	6	7	8	9	10	11	2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10	1	2	3	4	5	6	7	6	7	8	9	10	11	12
12	13	14	15	16	17	18	9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17	8	9	10	11	12	13	14	13	14	15	16	17	18	19
19	20	21	22	23	24	25	16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24	15	16	17	18	19	20	21	20	21	22	23	24	25	26
26	27	28	29	30	31	23	24	25	26	27	28	29	27	28	29	30	25	26	27	28	29	30	31	22	23	24	25	26	27	28	27	28	29	30	31						

Directions How much longer may each coupon be used?

Current Date	Expiration Date on Coupon	
1. April 15, 2002	December 15, 2002	_____
2. June 30, 2004	December 1, 2004	_____
3. April 5, 2003	November 20, 2003	_____
4. August 14, 2005	September 15, 2005	_____
5. July 4, 2003	August 31, 2003	_____
6. December 15, 2003	February 28, 2004	_____
7. May 5, 2003	September 7, 2003	_____
8. July 10, 2004	December 24, 2004	_____
9. January 17, 2005	January 31, 2005	_____
10. March 3, 2003	March 31, 2003	_____
11. February 15, 2004	May 31, 2004	_____
12. September 15, 2003	July 31, 2004	_____
13. January 10, 2003	April 30, 2003	_____
14. June 15, 2005	June 30, 2006	_____
15. October 13, 2004	October 31, 2004	_____



Division of Whole Numbers with Remainders

EXAMPLE

$3,259 \div 9 =$

Write this:

$$\begin{array}{r} 362 \frac{1}{9} \\ 9 \overline{)3,259} \\ \underline{-27} \\ 55 \\ \underline{-54} \\ 19 \\ \underline{-18} \\ 1 \end{array}$$

EXAMPLE

$7,006 \div 17 =$

Write this:

$$\begin{array}{r} 412 \frac{2}{17} \\ 17 \overline{)7,006} \\ \underline{-68} \\ 20 \\ \underline{-17} \\ 36 \\ \underline{-34} \\ 2 \end{array}$$

EXAMPLE

$7,543 \div 26 =$

Write this:

$$\begin{array}{r} 290 \frac{3}{26} \\ 26 \overline{)7,543} \\ \underline{-52} \\ 234 \\ \underline{-234} \\ 3 \end{array}$$

Remember to write the remainder over the divisor.

Directions Divide.

1. $8 \overline{)2,345}$

4. $9 \overline{)5,999}$

7. $11 \overline{)3,735}$

10. $42 \overline{)4,499}$

2. $7 \overline{)3,559}$

5. $18 \overline{)5,565}$

8. $20 \overline{)110,019}$

11. $61 \overline{)25,499}$

3. $11 \overline{)3,855}$

6. $31 \overline{)11,254}$

9. $41 \overline{)4,800}$

12. $40 \overline{)14,415}$

Directions Write these in the standard form and divide.

13. $14,472 \div 91 =$ _____

14. $53,408 \div 51 =$ _____

15. $72,420 \div 65 =$ _____



The Key to Using *Per*

EXAMPLE

Arsenio wanted to find the number of items to put into 4 even stacks. He has 56 items. What will be the number of items per stack?

Step 1

Write word problem.

Stack) Items

Step 2

Replace words with numbers.

$$\begin{array}{r} 14 \\ 4 \overline{)56} \end{array}$$

Arsenio will have 14 items per stack.

Directions Use the word “per” to solve these problems. Round answers to the nearest whole number or to the nearest cent.

- | | | | |
|-----|----------------------------|----------------------|-------|
| 1. | 36 feet of wire, 9 rolls | Feet per roll | _____ |
| 2. | 60,000 watts, 15 hours | Watts per hour | _____ |
| 3. | 46 miles, 2 gallons | Miles per gallon | _____ |
| 4. | 46 miles, 2 gallons | Gallons per mile | _____ |
| 5. | 320 people, 8 buses | People per bus | _____ |
| 6. | 1,240 students, 46 classes | Students per class | _____ |
| 7. | \$634.56 tips, 31 tables | Tips per table | _____ |
| 8. | 816 apples, 12 bushels | Apples per bushel | _____ |
| 9. | 1,897 cars, 6 lots | Cars per lot | _____ |
| 10. | 736 hours, 17 tasks | Hours per task | _____ |
| 11. | 857 students, 10 teachers | Students per teacher | _____ |
| 12. | 37 children, 14 adults | Children per adult | _____ |
| 13. | \$3.56, 26 ounces | Cost per ounce | _____ |
| 14. | \$15.72, 3 pounds | Cost per pound | _____ |
| 15. | 16,554 miles, 21 trips | Miles per trip | _____ |
| 16. | \$21,580, 2,000 hours | Salary per hour | _____ |
| 17. | 4,156 pieces, 40 hours | Pieces per hour | _____ |
| 18. | 4,365 miles, 107 hours | Miles per hour | _____ |
| 19. | 379 push-ups, 7 days | Push-ups per day | _____ |
| 20. | 4,998 miles, 32 days | Miles per day | _____ |



Division of Decimals

EXAMPLE $18.4 \div 8 =$

Write this:

$$\begin{array}{r} 2.3 \leftarrow \text{Quotient} \\ \text{Divisor} \rightarrow 8 \overline{)18.4} \leftarrow \text{Dividend} \\ \underline{-16} \\ 24 \\ \underline{-24} \end{array}$$

$0.768 \div 1.6 =$

Write this:

$$\begin{array}{r} .48 \\ 1.6 \overline{)0.768} \\ \underline{-64} \\ 128 \\ \underline{-128} \end{array}$$

Steps to Remember

- Move the decimal point in the divisor to the right.
- Move the decimal point in the dividend the same number of places.
- Then place a decimal point straight above it in the quotient.

Directions Divide.

1. $9 \overline{)41.4}$

5. $1.9 \overline{)8.74}$

9. $.026 \overline{)1.352}$

13. $.26 \overline{).10946}$

2. $5 \overline{)3.65}$

6. $1.1 \overline{)84.7}$

10. $.57 \overline{).9234}$

14. $.09 \overline{).1107}$

3. $8 \overline{)41.6}$

7. $.72 \overline{)1.224}$

11. $.33 \overline{)6.27}$

15. $.36 \overline{)32.76}$

4. $15 \overline{)40.5}$

8. $4.3 \overline{)8.213}$

12. $.056 \overline{).6328}$

16. $.04 \overline{).844}$

Directions Write these in standard form and divide.

17. $0.06734 \div 0.037 =$ _____

20. $0.4212 \div 0.36 =$ _____

18. $6.592 \div 0.16 =$ _____

21. $0.0405 \div 0.015 =$ _____

19. $0.08357 \div 0.61 =$ _____

22. $0.04592 \div 0.41 =$ _____



Rounding the Quotient

EXAMPLE

Round to the nearest tenth.
 $8 \div 0.9 =$

Write this:

$$\begin{array}{r} 8.88 \approx 8.9 \\ 0.9 \overline{)8.000} \\ \underline{-72} \\ 80 \\ \underline{-72} \\ 80 \\ \underline{-72} \\ 80 \\ \underline{-72} \\ 8 \end{array}$$

Zeros may be inserted one at a time until the desired number of places is reached for rounding.

EXAMPLE

Round to the nearest hundredth.
 $0.89 \div 2.3 =$

Write this:

$$\begin{array}{r} .386 \approx .39 \\ 2.3 \overline{)0.8900} \\ \underline{-69} \\ 200 \\ \underline{-184} \\ 160 \\ \underline{-138} \\ 22 \end{array}$$

Reminder: It may be necessary to write zeros in the dividend.

Directions Divide. Round to the place indicated.

1. Tenth

$.6 \overline{)5}$

5. Hundredth

$1.9 \overline{)2.5}$

9. Thousandth

$.03 \overline{)2}$

13. Hundredth

$7.1 \overline{)6.3}$

2. Hundredth

$.06 \overline{)7.1}$

6. Tenth

$.9 \overline{).87}$

10. Hundredth

$6.3 \overline{).64}$

14. Tenth

$9 \overline{)10}$

3. Hundredth

$23 \overline{)1}$

7. Hundredth

$1.3 \overline{).14}$

11. Hundredth

$5.1 \overline{)7.2}$

15. Thousandth

$6 \overline{)2}$

4. Thousandth

$5.8 \overline{)5.9}$

8. Hundredth

$.62 \overline{)5.3}$

12. One

$.024 \overline{)1.04}$

16. Hundredth

$12 \overline{)1.45}$

Directions Write these in the standard form and divide. Round the quotients to the nearest hundredth.

17. $5.1 \div 7.6 =$ _____

19. $0.215 \div 0.34 =$ _____

18. $1.7 \div 0.16 =$ _____

20. $5 \div 0.32 =$ _____



Shopping for the Best Buy

EXAMPLE

Vernon could buy a 7-oz box of chocolates for \$2.50, or he could buy an 11-oz box of chocolates for \$2.75. Which is the better buy? Round answers down to the next lower cent.

$$\$2.50 \div 7 = \$0.357$$

$$\$2.75 \div 11 = \$0.25$$

Since \$0.25 is less than \$0.35, the 11-oz box of chocolates is the better buy.

Directions Compute the unit prices and choose the better buy for each example below. Round answers down to the next lower cent.

Offer 1	Unit Price	Offer 2	Unit Price	Better Buy
1. \$24.00 for 20 ft	_____	\$12.00 for 8 ft	_____	_____
2. \$17.61 for 21 ft	_____	\$11.41 for 10 ft	_____	_____
3. \$14.96 for 25 lb	_____	\$21.11 for 24 lb	_____	_____
4. \$17.00 for 21 lb	_____	\$15.78 for 16 lb	_____	_____
5. \$16.72 for 19 in	_____	\$20.39 for 14 in	_____	_____
6. \$17.39 for 25 oz	_____	\$17.56 for 22 oz	_____	_____
7. \$2.58 for 11 ft	_____	\$2.33 for 13 ft	_____	_____
8. \$7.17 for 10 ft	_____	\$7.58 for 14 ft	_____	_____
9. \$8.73 for 17 yd	_____	\$11.03 for 8 yd	_____	_____
10. \$12.89 for 21 sq ft	_____	\$15.37 for 11 sq ft	_____	_____
11. \$4.05 for 16 ft	_____	\$4.14 for 19 ft	_____	_____
12. \$12.71 for 13 oz	_____	\$11.19 for 13 oz	_____	_____
13. \$1.47 for 7 lb	_____	\$0.96 for 5 lb	_____	_____
14. \$3.29 for 6 ft	_____	\$4.33 for 6 ft	_____	_____
15. \$14.78 for 19 gal	_____	\$17.65 for 18 gal	_____	_____
16. \$7.75 for 16 ft	_____	\$4.93 for 18 ft	_____	_____
17. \$0.91 for 17 in	_____	\$1.06 for 23 in	_____	_____
18. \$0.59 for 6 lb	_____	\$0.35 for 3 lb	_____	_____



Tipping in a Restaurant

EXAMPLE

Aaron, Rebecca, Caleb, Madeline, Connor, and Sophia all have dinner at the neighborhood restaurant. The bill comes to \$125, which they decide to split 6 ways. They also decide to give a 15% tip to the server. Find the amount due from each diner.

Step 1 Calculate the tip and add it to the bill. Do this in one step by mentally adding the percent of the tip to 100%.

$$\begin{aligned} \text{Notice } 100\% + 15\% &= 115\% \\ \$125 \times 115\% &= 125 \times 1.15 = \$143.75 \end{aligned}$$

Step 2 Divide by the number of diners. Round to the nearest 10 cents.

$$\begin{aligned} \$23.95 &\approx \$24.00 \\ 6 \overline{) \$143.75} \end{aligned}$$

Each person will pay \$24.

Directions Find the amount due from each diner. Round to the nearest 10 cents, if necessary.

Amount of the Bill	Number of Diners	Percent for Tip	Total Bill Plus Tip	Each Person's Share
1. \$124.00	4	15%	_____	_____
2. \$148.00	5	20%	_____	_____
3. \$80.00	3	15%	_____	_____
4. \$56.00	2	15%	_____	_____
5. \$259.75	6	20%	_____	_____
6. \$163.82	4	15%	_____	_____
7. \$374.60	8	18%	_____	_____
8. \$44.81	2	15%	_____	_____
9. \$94.71	3	15%	_____	_____
10. \$203.86	5	20%	_____	_____
11. \$66.90	3	15%	_____	_____
12. \$317.04	7	20%	_____	_____
13. \$478.45	10	18%	_____	_____
14. \$207.14	6	15%	_____	_____
15. \$571.08	10	18%	_____	_____



Ready-to-Wear

EXAMPLE

Jordan is going on his first winter camping trip. He needs to buy warm camping clothes. In the newspaper, he finds an ad for a camping supply sale. Jordan bought 2 pairs of wool socks for \$6.99 each, a waterproof jacket for \$55.00, and 2 pairs of thermal underwear for \$12.50 each. The state sales tax is 5.25%. What is his total cost?

Step 1 Multiply, then add to find the total cost.

$$\begin{array}{r}
 2 \text{ pairs wool socks @ } \$6.99 = \$13.98 \\
 \text{Jacket @ } \$55.00 = 55.00 \\
 2 \text{ pairs underwear @ } \$12.50 = + 25.00 \\
 \hline
 \$93.98
 \end{array}$$

Step 2 Multiply the cost by the sales tax rate.

$$\begin{array}{r}
 \text{Round to the next higher cent. (Note:} \\
 \text{some states use rounding to nearest} \\
 \text{cent, others raise to the next cent.)} \\
 \$93.98 \text{ Cost of clothes} \\
 \times .0525 \text{ Tax rate} \\
 \hline
 \$4.93395 \text{ Sales Tax} = \$4.94 \text{ Sales tax}
 \end{array}$$

Step 3 Add the sales tax to the cost to find the total amount Jordan will pay.

$$\begin{array}{r}
 \$93.98 \text{ Cost of clothes} \\
 + 4.94 \text{ Sales Tax} \\
 \hline
 \$98.92 \text{ Total Amount}
 \end{array}$$

Jordan paid \$98.92 for his purchases.

Directions Find the cost of each set of purchases. Find the sales tax, rounding to the next higher cent. Then add the sales tax to the cost to find the total amount paid.

	Shopper	Purchases	Cost of Purchases	Tax Rate	Sales Tax	Total Amount Paid
1.	Serena	2 bathing suits @ \$29.00 flippers, \$18.79		5%		
2.	Boris	hiking boots, \$104.59 4 pair socks @ \$12.99		6%		
3.	Jane	poncho, \$49.99 boots @ \$29.99		7%		
4.	Liu	backpack, \$149 ⁰⁰ 2 kercheifs, @ \$5 ⁰⁰		4%		
5.	Raven	pocket pants, \$29.99 5 pairs sweats, \$39.99		4%		
6.	Bob	ski gloves, \$24.97 3 scarves @ \$5.85		5%		
7.	Myan	sun hat, \$7 ⁹⁹ shorts, \$14.97		3.5%		



Finding Amount Saved on Sale Prices

EXAMPLE

JJ works hard and plays hard. He wants to be able to afford fun things so he looks for bargains. He has found a skateboard that regularly sells for \$125.00. It is on sale for 30% off. He decides to buy it. How much will he save? What will he pay?

Step 1 Multiply to find the amount saved.

$$\begin{aligned} \$125 \times 30\% &= \\ \$125 \times .30 &= \$37.50 \end{aligned}$$

Step 2 Subtract to find the Sale Price

$$\begin{array}{r} \$125.00 \text{ Regular price} \\ - 37.50 \text{ Amount Saved} \\ \hline \$87.50 \text{ Sale Price} \end{array}$$

JJ saved \$37.50 on the sale price. He will pay \$87.50.

Directions Find the amount saved on the sale price.

	Item	Regular Price	Discount	Amount Saved	Sale Price
1.	Airline ticket	\$399.00	12%		
2.	Music CD	\$14.99	10%		
3.	Inline skates	\$240.00	20%		
4.	Boom box	\$79.50	15%		
5.	Best-selling book	\$29.95	20%		
6.	Mountain bike	\$749.50	5%		
7.	Hockey stick	\$10.00	10%		
8.	Camcorder	\$699.95	30%		
9.	Hair dryer	\$35.00	10%		
10.	DVD player	\$149.49	15%		
11.	Video game	\$39.95	10%		
12.	Concert tickets	\$42.00	5%		
13.	Cell phone	\$159.00	20%		
14.	Movie ticket	\$7.50	50%		
15.	Telephone card	\$25.00	20%		
16.	Handheld pc	\$249.00	15%		
17.	Digital camera	\$399.00	10%		
18.	Karaoke machine	\$99.99	30%		
19.	53" HDTV monitor	\$3,010.00	17%		
20.	DVD home theater system	\$600.00	17%		



Renaming Decimals as Percents

Method: Move the decimal point two places to the right and write a percent symbol.

EXAMPLE Rename 0.45 as a percent.

$$0.45 = 45\%$$

EXAMPLE Rename 1.2 as a percent.

$$1.2 = 120\%$$

↑
Write a zero to
make two places.

EXAMPLE Rename 3 as a percent.

$$3 = 300\%$$

Directions Rename these decimals as percents.

1. $0.24 =$

13. $56.2 =$

25. $3.7 =$

37. $0.003 =$

2. $0.05 =$

14. $0.9 =$

26. $0.4 =$

38. $0.106 =$

3. $0.234 =$

15. $5.5 =$

27. $6.01 =$

39. $1.29 =$

4. $0.016 =$

16. $3.44 =$

28. $0.318 =$

40. $2 =$

5. $1.29 =$

17. $0.1 =$

29. $4.051 =$

41. $0.0452 =$

6. $2.33 =$

18. $0.91 =$

30. $1.8 =$

42. $0.444 =$

7. $0.002 =$

19. $31.6 =$

31. $74.9 =$

43. $4.881 =$

8. $14.5 =$

20. $0.0035 =$

32. $82 =$

44. $0.0201 =$

9. $28.1 =$

21. $0.001 =$

33. $8.0 =$

45. $0.0001 =$

10. $5.2 =$

22. $4 =$

34. $6.05 =$

46. $3.3 =$

11. $0.06 =$

23. $71 =$

35. $0.6 =$

47. $56 =$

12. $4.05 =$

24. $8.9 =$

36. $0.11 =$

48. $1.011 =$



Computing the Sale Price

EXAMPLE Claudia buys \$10 earrings with a 32% discount. How much does she pay?

Think: $100\% - 32\% = 68\%$

$$\begin{array}{r} \$ 10.00 \\ \times \quad .68 \\ \hline 80\ 00 \\ + 600\ 0 \\ \hline \$6.80\ 00 \end{array}$$

Claudia pays \$6.80.

Directions Use the shortcut method to compute the sale price in just one written step. Round to the next higher cent.

	Regular Price	Discount	Sale Price		Regular Price	Discount	Sale Price
1.	\$26.00	10%	_____	18.	\$23.30	36%	_____
2.	\$17.43	12%	_____	19.	\$46.90	24%	_____
3.	\$38.46	26%	_____	20.	\$46.84	36%	_____
4.	\$36.32	11%	_____	21.	\$5.13	8%	_____
5.	\$46.61	8%	_____	22.	\$9.45	39%	_____
6.	\$30.17	38%	_____	23.	\$34.60	21%	_____
7.	\$20.70	28%	_____	24.	\$8.73	3%	_____
8.	\$35.66	31%	_____	25.	\$411.84	37.1%	_____
9.	\$17.01	16%	_____	26.	\$43.97	16%	_____
10.	\$362.01	31.2%	_____	27.	\$39.03	18%	_____
11.	\$40.87	43%	_____	28.	\$17.80	12%	_____
12.	\$26.60	31%	_____	29.	\$32.70	17%	_____
13.	\$19.89	44%	_____	30.	\$18.65	26%	_____
14.	\$42.20	39%	_____	31.	\$32.99	17%	_____
15.	\$26.67	44%	_____	32.	\$30.13	15%	_____
16.	\$6.98	2%	_____	33.	\$47.02	45%	_____
17.	\$28.45	25%	_____	34.	\$45.44	41%	_____



Buying from a Catalog

EXAMPLE

Ron and Jane plan to travel to Europe in July. They are looking for T-shirts that will keep them cool. Ron wants 1 of each style in the short-sleeve T-shirt, 1 in blue and 1 in grey, size L. Jane wants 1 each of 3 colors, size M, in the long-sleeve style. They order from this CoolGuy catalog.

CoolGuyT-shirts are great for traveling. Wash them and they dry instantly!
Men's sizes S, M, L, XL, XXL. Women's sizes XS, S, M, L, XL.

Men's CoolGuy T-shirts in Grey, White, Blue,
Black or Mineral

Short-sleeve pocket #7264 \$26.50

Short-sleeve #2286 \$24.50

Long-sleeve #2285 \$29.50

Women's CoolGuy T-shirts in Lapis, White,
or Cherry

Short-sleeve #5968 \$24.00

Long-sleeve #5969 \$30.00

Directions Complete the order forms for Ron and Jane.

Ron

	Item #	How Many	Color	Size	Description	Amount
1.						
2.						
3.						
4.						
5.	Total of Merchandise					
6.	Add 8% sales tax					
	Shipping & Handling					5.95
7.	Total Amount					

Jane

	Item #	How Many	Color	Size	Description	Amount
1.						
2.						
3.						
4.						
5.	Total of Merchandise					
6.	Add 8% sales tax					
	Shipping & Handling					5.95
7.	Total Amount					



Renaming to the Simplest Form

EXAMPLE

$\frac{9}{7}$

$$\begin{array}{r} \text{Think: } 1 \\ 7 \overline{)9} \\ \underline{-7} \\ 2 \end{array}$$

$$\text{Answer: } \frac{9}{7} = 1 \frac{2}{7}$$

EXAMPLE

$16 \frac{15}{4}$

$$\begin{aligned} 16 \frac{15}{4} &= 16 + \frac{15}{4} \\ &= 16 + 3 \frac{3}{4} \\ &= 19 \frac{3}{4} \end{aligned}$$

Think:

$$\begin{array}{r} 3 \\ 4 \overline{)15} \text{ equals } 3 \frac{3}{4} \\ \underline{-12} \\ 3 \end{array}$$

Directions Rename each to the simplest form.

1. $\frac{18}{5} =$

8. $\frac{22}{4} =$

15. $25 \frac{5}{4} =$

22. $\frac{123}{11} =$

29. $\frac{53}{13} =$

2. $16 \frac{4}{3} =$

9. $23 \frac{16}{9} =$

16. $\frac{33}{10} =$

23. $\frac{45}{7} =$

30. $2 \frac{3}{2} =$

3. $\frac{19}{2} =$

10. $\frac{19}{6} =$

17. $13 \frac{5}{2} =$

24. $33 \frac{16}{3} =$

31. $\frac{53}{10} =$

4. $\frac{22}{7} =$

11. $\frac{42}{5} =$

18. $\frac{29}{7} =$

25. $5 \frac{18}{9} =$

32. $\frac{75}{8} =$

5. $\frac{25}{3} =$

12. $\frac{35}{8} =$

19. $\frac{57}{6} =$

26. $1 \frac{32}{7} =$

33. $6 \frac{5}{4} =$

6. $\frac{28}{5} =$

13. $\frac{26}{13} =$

20. $\frac{64}{7} =$

27. $\frac{16}{3} =$

34. $7 \frac{4}{3} =$

7. $\frac{23}{5} =$

14. $\frac{32}{7} =$

21. $\frac{108}{9} =$

28. $\frac{47}{8} =$

35. $9 \frac{21}{4} =$



Expressing Fractions in Higher Terms

EXAMPLE Express $\frac{5}{6}$ as a fraction with a denominator of 24.

Step 1:

$$\frac{5}{6} = \frac{\quad}{24}$$

Step 2:

$$\frac{5 \times 4}{6 \times 4} = \frac{\quad}{24}$$

Step 3:

$$\frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$

Step 4:

$$\frac{5}{6} = \frac{20}{24}$$

Because $24 \div 6 = 4$, multiply 5 by 4.

New fraction.

Directions Express each fraction in higher terms as indicated.

1. $\frac{7}{8} = \frac{\quad}{40}$

9. $\frac{5}{13} = \frac{\quad}{39}$

17. $\frac{3}{13} = \frac{\quad}{65}$

25. $\frac{12}{21} = \frac{\quad}{126}$

33. $\frac{5}{16} = \frac{\quad}{112}$

2. $\frac{4}{9} = \frac{\quad}{36}$

10. $\frac{4}{15} = \frac{\quad}{75}$

18. $\frac{4}{22} = \frac{\quad}{110}$

26. $\frac{2}{11} = \frac{\quad}{121}$

34. $\frac{2}{19} = \frac{\quad}{76}$

3. $\frac{2}{3} = \frac{\quad}{12}$

11. $\frac{3}{11} = \frac{\quad}{66}$

19. $\frac{5}{7} = \frac{\quad}{56}$

27. $\frac{3}{16} = \frac{\quad}{80}$

35. $\frac{5}{13} = \frac{\quad}{91}$

4. $\frac{5}{11} = \frac{\quad}{55}$

12. $\frac{2}{17} = \frac{\quad}{34}$

20. $\frac{3}{5} = \frac{\quad}{95}$

28. $\frac{4}{5} = \frac{\quad}{80}$

36. $\frac{6}{15} = \frac{\quad}{105}$

5. $\frac{5}{12} = \frac{\quad}{36}$

13. $\frac{12}{20} = \frac{\quad}{60}$

21. $\frac{3}{9} = \frac{\quad}{54}$

29. $\frac{2}{12} = \frac{\quad}{84}$

37. $\frac{4}{13} = \frac{\quad}{117}$

6. $\frac{2}{7} = \frac{\quad}{35}$

14. $\frac{11}{12} = \frac{\quad}{60}$

22. $\frac{1}{7} = \frac{\quad}{63}$

30. $\frac{5}{7} = \frac{\quad}{70}$

38. $\frac{11}{23} = \frac{\quad}{161}$

7. $\frac{6}{9} = \frac{\quad}{54}$

15. $\frac{4}{21} = \frac{\quad}{84}$

23. $\frac{2}{3} = \frac{\quad}{108}$

31. $\frac{2}{12} = \frac{\quad}{72}$

39. $\frac{35}{50} = \frac{\quad}{250}$

8. $\frac{1}{2} = \frac{\quad}{10}$

16. $\frac{1}{16} = \frac{\quad}{48}$

24. $\frac{3}{4} = \frac{\quad}{52}$

32. $\frac{3}{18} = \frac{\quad}{54}$

40. $\frac{5}{40} = \frac{\quad}{200}$



Addition of Fractions

EXAMPLE $12\frac{1}{5} + 4\frac{3}{5} =$

Write this:

$$\begin{array}{r} 12\frac{1}{5} \\ + 4\frac{3}{5} \\ \hline 16\frac{4}{5} \end{array}$$

If the denominators are the same, then add the numerators.

EXAMPLE $13\frac{2}{7} + 3\frac{3}{14} =$

Write this:

$$\begin{array}{r} 13\frac{2}{7} = 13\frac{4}{14} \\ + 3\frac{3}{14} = 3\frac{3}{14} \\ \hline 16\frac{7}{14} = 16\frac{1}{2} \end{array}$$

Find the least common denominator. Then add.

Simplify to the lowest terms.

Directions Add. Simplify your answers to the lowest terms.

1. $13\frac{3}{8}$
+ $2\frac{2}{8}$

7. $9\frac{2}{3}$
+ 5

13. $33\frac{5}{8}$
+ $\frac{1}{6}$

19. $8\frac{2}{11}$
+ $5\frac{5}{66}$

2. $23\frac{5}{17}$
+ $5\frac{2}{17}$

8. $\frac{5}{6}$
+ $\frac{1}{5}$

14. $\frac{3}{15}$
+ $\frac{2}{30}$

20. $2\frac{1}{5}$
+ $\frac{8}{45}$

3. $18\frac{1}{2}$
+ $9\frac{1}{5}$

9. $\frac{8}{22}$
+ $\frac{5}{22}$

15. $\frac{6}{7}$
+ $\frac{4}{8}$

21. $8\frac{6}{19}$
+ $2\frac{3}{38}$

4. $5\frac{2}{13}$
+ $6\frac{3}{26}$

10. $2\frac{3}{10}$
+ $1\frac{5}{20}$

16. $3\frac{3}{8}$
+ $2\frac{1}{6}$

22. $32\frac{3}{16}$
+ $1\frac{2}{64}$

5. $3\frac{1}{7}$
+ $2\frac{1}{8}$

11. $35\frac{6}{7}$
+ $4\frac{1}{8}$

17. $5\frac{1}{3}$
+ $2\frac{3}{5}$

23. $2\frac{5}{13}$
+ 5

6. $8\frac{5}{12}$
+ $\frac{1}{6}$

12. $14\frac{2}{10}$
+ $3\frac{1}{5}$

18. $9\frac{1}{6}$
+ $2\frac{1}{9}$

24. $21\frac{5}{7}$
+ $4\frac{6}{8}$



Subtraction of Fractions

EXAMPLE $13\frac{11}{12} - 2\frac{2}{12} =$

Write this:

$$\begin{array}{r} 13\frac{11}{12} \\ - 2\frac{2}{12} \\ \hline 11\frac{9}{12} = 11\frac{3}{4} \end{array}$$

If the denominators are the same, then subtract the numerators.

Simplify to the lowest terms.

EXAMPLE $6\frac{5}{7} - 2\frac{3}{21} =$

Write this:

$$\begin{array}{r} 6\frac{5}{7} = 6\frac{15}{21} \\ - 2\frac{3}{21} = 2\frac{3}{21} \\ \hline 4\frac{12}{21} = 4\frac{4}{7} \end{array}$$

Find the least common denominator. Then subtract.

Directions Subtract. Simplify your answers to the lowest terms.

1. $\frac{6}{7}$
 $-\frac{4}{7}$

7. $2\frac{2}{3}$
 $-1\frac{1}{7}$

13. $3\frac{5}{8}$
 $-2\frac{3}{16}$

19. $1\frac{27}{28}$
 $-\frac{3}{7}$

2. $14\frac{11}{15}$
 $-2\frac{1}{15}$

8. $10\frac{3}{16}$
 $-1\frac{1}{32}$

14. $8\frac{5}{12}$
 $-2\frac{2}{18}$

20. $14\frac{1}{5}$
 $-5\frac{1}{8}$

3. $8\frac{2}{3}$
 $-6\frac{1}{6}$

9. $3\frac{7}{12}$
 $-\frac{2}{8}$

15. $18\frac{2}{5}$
 $-3\frac{1}{15}$

21. $30\frac{3}{13}$
 $-4\frac{4}{39}$

4. $7\frac{4}{5}$
 $-2\frac{6}{10}$

10. $12\frac{4}{5}$
 -3

16. $7\frac{8}{9}$
 $-2\frac{3}{18}$

22. $15\frac{1}{2}$
 $-2\frac{3}{7}$

5. $6\frac{19}{20}$
 $-4\frac{1}{5}$

11. $26\frac{3}{8}$
 $-4\frac{2}{6}$

17. $26\frac{7}{8}$
 $-2\frac{1}{6}$

23. $81\frac{2}{11}$
 $-3\frac{2}{22}$

6. $25\frac{5}{7}$
 $-2\frac{3}{8}$

12. $2\frac{7}{11}$
 $-1\frac{6}{66}$

18. $9\frac{5}{12}$
 $-4\frac{2}{9}$

24. $12\frac{6}{10}$
 $-3\frac{2}{25}$



Subtraction with Renaming

EXAMPLE

$$10 \frac{4}{11} - 4 \frac{5}{11} =$$

Write this:

$$\begin{array}{r} 10 \frac{4}{11} = 9 \frac{15}{11} \\ - 4 \frac{5}{11} = 4 \frac{5}{11} \\ \hline 5 \frac{10}{11} \end{array}$$

Remember $1 = \frac{11}{11}$,
so $\frac{15}{11} = \frac{4}{11} + \frac{11}{11}$.

EXAMPLE

$$9 \frac{2}{5} - 6 \frac{11}{15} =$$

Write this:

$$\begin{array}{r} 9 \frac{2}{5} = 9 \frac{6}{15} = 8 \frac{21}{15} \\ - 6 \frac{11}{15} = 6 \frac{11}{15} \\ \hline 2 \frac{10}{15} = 2 \frac{2}{3} \end{array}$$

Directions Subtract. Rename when necessary. Simplify your answers.

$$\begin{array}{r} 1. \quad 12 \frac{5}{13} \\ - 3 \frac{6}{13} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 36 \frac{3}{14} \\ - 4 \frac{6}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 25 \frac{1}{6} \\ - 2 \frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 19. \quad 18 \\ - 2 \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 5 \frac{2}{7} \\ - 3 \frac{4}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 45 \frac{1}{9} \\ - 2 \frac{3}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad 4 \frac{1}{6} \\ - 2 \frac{3}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 20. \quad 17 \frac{2}{9} \\ - 3 \frac{4}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 16 \frac{2}{3} \\ - 5 \frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 4 \frac{2}{15} \\ - 2 \frac{1}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 3 \frac{1}{3} \\ - 2 \frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 21. \quad 8 \\ - 2 \frac{1}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 18 \frac{1}{5} \\ - 2 \frac{6}{7} \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 29 \frac{3}{16} \\ - 4 \frac{5}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 16. \quad 1 \frac{7}{8} \\ - \frac{8}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 22. \quad 15 \frac{3}{4} \\ - 5 \frac{9}{10} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 33 \frac{15}{18} \\ - \frac{8}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad 11 \frac{2}{11} \\ - 3 \frac{8}{22} \\ \hline \end{array}$$

$$\begin{array}{r} 17. \quad 27 \frac{5}{16} \\ - 2 \frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 23. \quad 3 \frac{2}{9} \\ - 2 \frac{1}{3} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 41 \frac{7}{10} \\ - 3 \frac{4}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 29 \frac{6}{31} \\ - 4 \frac{21}{62} \\ \hline \end{array}$$

$$\begin{array}{r} 18. \quad 4 \frac{1}{3} \\ - 2 \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 24. \quad 4 \frac{6}{7} \\ - 3 \\ \hline \end{array}$$



Multiplication of Decimals

EXAMPLE $31.2 \times 0.34 =$

Write this:

$$\begin{array}{r} 31.2 \\ \times .34 \\ \hline 1248 \\ +936 \\ \hline 10608 \end{array}$$

1 Decimal place
+ 2 Decimal places
3 Decimal places to be marked off in the product counting from right to left.

EXAMPLE $0.33 \times 0.005 =$

Write this:

$$\begin{array}{r} .33 \\ \times .005 \\ \hline 0.00165 \end{array}$$

Sometimes it becomes necessary to insert zeros at the left.

Directions Multiply.

1. $\begin{array}{r} 3.4 \\ \times 2.6 \\ \hline \end{array}$

4. $\begin{array}{r} 4.21 \\ \times 3.8 \\ \hline \end{array}$

7. $\begin{array}{r} 20.34 \\ \times 10.3 \\ \hline \end{array}$

10. $\begin{array}{r} .0037 \\ \times .019 \\ \hline \end{array}$

2. $\begin{array}{r} 71.8 \\ \times .29 \\ \hline \end{array}$

5. $\begin{array}{r} 10.8 \\ \times 1.71 \\ \hline \end{array}$

8. $\begin{array}{r} .234 \\ \times .008 \\ \hline \end{array}$

11. $\begin{array}{r} .00319 \\ \times .0084 \\ \hline \end{array}$

3. $\begin{array}{r} 3.02 \\ \times .12 \\ \hline \end{array}$

6. $\begin{array}{r} 4.501 \\ \times 2.3 \\ \hline \end{array}$

9. $\begin{array}{r} 1.03 \\ \times .009 \\ \hline \end{array}$

12. $\begin{array}{r} .0028 \\ \times .072 \\ \hline \end{array}$

Directions Write these in vertical form and multiply.

13. $2.034 \times 4.5 =$ _____

19. $0.934 \times 23.1 =$ _____

14. $4.9 \times 0.009 =$ _____

20. $0.0201 \times 0.039 =$ _____

15. $0.004 \times 0.24 =$ _____

21. $0.0031 \times 0.009 =$ _____

16. $49.5 \times 3.4 =$ _____

22. $10.07 \times 0.35 =$ _____

17. $3.405 \times 0.003 =$ _____

23. $129 \times 4.03 =$ _____

18. $0.00391 \times 0.019 =$ _____

24. $0.506 \times 0.0001 =$ _____



Using a Charge Account

EXAMPLE

Ryan has bought supplies for her floral shop on her credit card. She owes \$330.00. The minimum payment due is \$40.00. Ryan decides to pay \$80.00. That is more than her minimum so that she can pay it off faster. Ryan's interest charge per month is 0.9% of the unpaid balance. How much will she owe next month if she makes no new purchases?

Step 1 Subtract the payment from the balance to find unpaid balance.

$$\begin{array}{r} \$330 \text{ Balance} \\ - 80 \text{ Payment} \\ \hline \$250 \text{ New Balance} \end{array}$$

Step 2 Find the interest on the unpaid balance.

$$\begin{array}{r} \$250 \\ \times .009 \\ \hline \$2.25 \end{array}$$

Step 3 Add the interest to the unpaid balance to the new balance.

$$\begin{array}{r} \$250.00 \\ + 2.25 \\ \hline \$252.25 \end{array}$$

Ryan now owes \$252.25 on her charge account.

Directions Find the interest and new balance on these charge accounts.

	Balance	Payment	Unpaid Balance	Interest Rate per Month	Interest	New Balance
1.	\$100.00	\$20		1.2%		
2.	\$1,020.00	\$100		1.5%		
3.	\$450.00	\$45		1.6%		
4.	\$825.00	\$85		0.9%		
5.	\$56.00	\$2.80		1.4%		
6.	\$143.00	\$7.15		1.5%		
7.	\$253.00	\$12.65		1.6%		
8.	\$167.00	\$8.35		2.0%		
9.	\$52.70	\$2.64		1.8%		
10.	\$152.89	\$7.64		1.5%		
11.	\$376.14	\$18.81		1.3%		
12.	\$985.09	\$49.25		1.5%		
13.	\$552.17	\$27.61		1.6%		
14.	\$682.34	\$34.12		1.8%		
15.	\$710.02	\$35.50		0.9%		



Using a Layaway Plan

EXAMPLE

Mikkel and his brother Jay bought a house together. They want to invest in an energy saving refrigerator that costs \$899.99. They decide to use a five-month layaway. They made a 15% deposit. How much do they owe each month?

Step 1 Find the deposit. It is customary to round the amount to the nearest cent.

$$\begin{array}{r} \$900 \\ \times .15 \\ \hline \$135 \end{array}$$

Step 2 Find the remaining amount to be paid.

$$\begin{array}{r} \$900 \\ - 135 \\ \hline \$765 \end{array}$$

Step 3 Find the amount of each layaway payment.

$$\begin{array}{r} \$153 \\ 5 \overline{) \$765} \end{array}$$

Mikkel and Jay will make a \$135 deposit and pay 5 layaway payments of \$153. Then they will take their refrigerator home.

Directions Find the deposit and monthly payment for each layaway plan.

	Item	Price	Percent Deposit	Deposit Amount	Remainder Due	Number of Payments	Payment Amount
1.	Air Filter	\$249.99	20%			5	
2.	Water Heater	\$269.99	33%			10	
3.	Sewing Machine	\$175.00	30%			5	
4.	Down Comforter	\$159.00	10%			6	
5.	Clothes Dryer	\$499.99	15%			10	
6.	Winter Coat	\$174.99	15%			5	
7.	Set of Luggage	\$249.99	10%			5	
8.	Cooking Pan Set	\$179.99	12%			10	
9.	Mountain Bike	\$359.99	25%			5	
10.	DVD Player	\$229.99	50%			5	



Renting a Home

EXAMPLE

Renter's Rule You should spend no more than one week's income for a month's rent. Xavier earns \$2,080 per month. What is the maximum amount that he should pay for rent?

There are about 4.3 weeks in each month. To estimate Xavier's weekly income, divide his monthly income by 4.3

$$\begin{array}{r} \$483.72 \\ 4.3 \overline{) \$2,080.00} \end{array}$$

Xavier can afford to spend about \$484 dollars per month for rent.

Directions Use the renter's rule to find the maximum amount that should be spent for rent with each of these incomes. Remember that 1 year equals 12 months or 52 weeks. Round answers to the nearest dollar.

Renter	Income	Maximum Amount for Rent
1. Makayla	\$8,146 per month	_____
2. Jared	\$1,256 every two weeks	_____
3. Brooke	\$18,450 annually	_____
4. Marissa	\$3,549 monthly	_____
5. Ian	\$2,894 biweekly	_____
6. Marcus	\$6,268 per month	_____
7. Devin	\$44,000 annually	_____
8. Eduardo	\$2,025 every two weeks	_____
9. Vanessa	\$1,563 monthly	_____
10. Miguel	\$28,800 annually	_____
11. Wyatt	\$3,095 monthly	_____
12. Isabelle	\$42,970 annually	_____
13. Lucas	\$940 every two weeks	_____
14. Alexandria	\$3,564 monthly	_____
15. Shelby	\$40,600 annually	_____
16. Trinity	\$2,335 every two weeks	_____
17. Kimberly	\$4,040 monthly	_____
18. Blake	\$800 twice a month	_____
19. Antonio	\$955 twice a month	_____
20. Fernando	\$32,684 annually	_____



Buying a Home

EXAMPLE

Banker's Rule You may borrow up to 2.5 times your annual income. Arianna is buying a home. Her weekly income is \$900. What is the maximum amount that she may borrow?

Step 1: Find annual income

$$\begin{array}{r} \$900 \text{ weekly income} \\ \times 52 \text{ weeks in a year} \\ \hline \$46,800 \text{ annual income} \end{array}$$

Step 2: Apply the Banker's Rule

$$\begin{array}{r} \$46,800 \\ \times 2.5 \\ \hline \$117,000 \end{array}$$

Arianna may borrow up to \$117,000.

Directions Use the Banker's Rule to find the maximum amount that may be borrowed with each of these incomes. Remember that 1 year equals 12 months or 52 weeks. Round answers to the nearest dollar.

	Renter	Income	Annual Income	Maximum Able to Borrow
1.	Makayla	\$8,146 per month	_____	_____
2.	Jared	\$1,256 every two weeks	_____	_____
3.	Brooke	\$18,450 annually	_____	_____
4.	Marissa	\$3,549 monthly	_____	_____
5.	Ian	\$2,894 biweekly	_____	_____
6.	Marcus	\$6,268 per month	_____	_____
7.	Devin	\$44,000 annually	_____	_____
8.	Eduardo	\$2,025 every two weeks	_____	_____
9.	Vanessa	\$1,563 monthly	_____	_____
10.	Miguel	\$28,800 annually	_____	_____
11.	Wyatt	\$3,095 monthly	_____	_____
12.	Isabelle	\$42,970 annually	_____	_____
13.	Lucas	\$940 every two weeks	_____	_____
14.	Alexandria	\$3,564 monthly	_____	_____
15.	Shelby	\$40,600 annually	_____	_____
16.	Trinity	\$2,335 every two weeks	_____	_____
17.	Kimberly	\$4,040 monthly	_____	_____
18.	Blake	\$800 twice a month	_____	_____
19.	Antonio	\$955 twice a month	_____	_____
20.	Fernando	\$32,684 annually	_____	_____



Computing the Down Payment

EXAMPLE Jesus Morales decided to purchase a townhouse. The price is \$83,500. What is his 18% down payment? How much is left to mortgage?

Step 1 Find the down payment

$$\begin{array}{r} \$83,500 \\ \times .18 \\ \hline \$15,030.00 \end{array}$$

Step 2 Find amount to mortgage

$$\begin{array}{r} \$83,500 \\ - 15,030 \\ \hline \$68,470 \end{array}$$

Jesus will make a \$15,030 down payment and mortgage the rest, \$68,470.

Directions Find the amount of the down payment and the amount of the mortgage for each townhouse.

	Cost of House	Rate of Down Payment	Down Payment	Mortgage
1.	\$53,000	10%	_____	_____
2.	\$65,000	15%	_____	_____
3.	\$67,500	20%	_____	_____
4.	\$69,900	30%	_____	_____
5.	\$74,500	10%	_____	_____
6.	\$86,000	5%	_____	_____
7.	\$99,900	20%	_____	_____
8.	\$101,000	18%	_____	_____
9.	\$105,995	22%	_____	_____
10.	\$109,900	19%	_____	_____
11.	\$115,000	10%	_____	_____
12.	\$116,900	20%	_____	_____
13.	\$118,000	30%	_____	_____
14.	\$119,000	25%	_____	_____
15.	\$120,000	14%	_____	_____
16.	\$123,500	17%	_____	_____
17.	\$125,999	21%	_____	_____
18.	\$159,000	14%	_____	_____
19.	\$179,900	30%	_____	_____
20.	\$180,000	75%	_____	_____

Paying Mortgages

EXAMPLE

James obtained an \$84,000, 30-year balloon mortgage at 10.5% for 5 years. How much does James still owe after 5 years?

Mortgage	Rate	Term in Years
\$84,000	10.5%	30

Step 1: Look in the table. Find the percentage at 10.5% for 30 years. The percentage is 96.9%.

Step 2: Multiply \$84,000 by 96.9%

$$\begin{array}{r}
 \$ \quad 84,000 \\
 \times \quad .969 \\
 \hline
 \quad 756\,000 \\
 \quad 5\,040\,00 \\
 \quad 75\,600\,0 \\
 \hline
 \$81,396.00
 \end{array}$$

The principal remaining at the end of his 5-year balloon mortgage is \$81,396.

Percentage of Mortgage Principal Left After 5 Years

Rate	Term	
	20 Yrs.	30 Yrs.
10%	89.8%	96.6%
10.5%	90.3%	96.9%
11%	90.8%	97.2%
11.5%	91.3%	97.4%
12%	91.7%	97.7%
12.5%	92.2%	97.9%
13%	92.6%	98.1%
13.5%	93.1%	98.3%
14%	93.4%	98.4%
14.5%	93.7%	98.6%
15%	94.1%	98.7%
15.5%	94.4%	98.8%
16%	94.7%	99%

Directions Compute the principal remaining at the end of each 5-year balloon mortgage.

Mortgage	Rate	Term in Years	Remaining Principal	Mortgage	Rate	Term in Years	Remaining Principal
1. \$79,000	14.5%	30	_____	14. \$106,000	12%	30	_____
2. \$89,000	11.5%	30	_____	15. \$69,000	13%	20	_____
3. \$42,000	10%	30	_____	16. \$59,000	12%	30	_____
4. \$64,000	14%	30	_____	17. \$84,000	15.5%	30	_____
5. \$67,000	12.5%	20	_____	18. \$1,056,000	11%	20	_____
6. \$68,000	14%	30	_____	19. \$48,000	15.5%	30	_____
7. \$42,000	15%	30	_____	20. \$66,000	14%	20	_____
8. \$55,000	14%	30	_____	21. \$67,000	14.5%	30	_____
9. \$104,000	12.5%	20	_____	22. \$85,000	11.5%	30	_____
10. \$781,000	16%	30	_____	23. \$67,000	10.5%	20	_____
11. \$98,000	13.5%	20	_____	24. \$86,000	10.5%	30	_____
12. \$104,000	10.5%	30	_____	25. \$78,000	12%	20	_____
13. \$73,000	15%	30	_____	26. \$104,000	15.5%	30	_____



Fixed-Rate Mortgage Payments

EXAMPLE

Mortgage \$65,000 *Rate* 12.75% *Term in Years* 25

Step 1: Look at the table. The payment at 12.75% for 25 years is \$11.10.

Step 2: \$ 11.10 Payment for \$1,000
 \times 65 (Loan is \$65,000)
 \$ 721.50 Payment for \$65,000

Step 3: 12 Months in 1 year
 \times 25 Years
 300 Months in 25 years

Step 4: \$ 721.50 Payment for 1 month
 \times 300 Months
 \$216,450 Total payment

Monthly Payment to Amortize (Repay)
a Loan of \$1,000

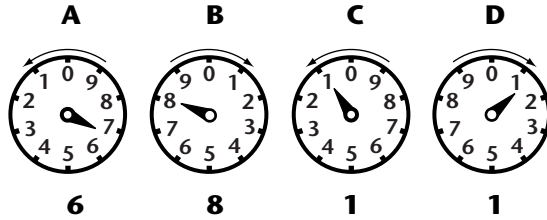
Rate	Term		
	20 Years	25 Years	30 Years
12.50%	\$11.37	\$10.91	\$10.68
12.75%	11.54	11.10	10.87
13.00%	11.72	11.28	11.07
13.25%	11.90	11.47	11.26
13.50%	12.08	11.66	11.46
13.75%	12.26	11.85	11.66
14.00%	12.44	12.04	11.85
14.25%	12.62	12.23	12.05
14.50%	12.80	12.43	12.25
14.75%	12.99	12.62	12.45

Directions Compute the total payment for each of these mortgage loans.

Mortgage	Rate	Term in Years	Total Payment	Mortgage	Rate	Term in Years	Total Payment
1. \$55,000	13.75%	30	_____	14. \$46,000	13.5%	25	_____
2. \$55,000	14%	30	_____	15. \$46,000	13.5%	20	_____
3. \$34,000	13.5%	30	_____	16. \$36,000	14.25%	25	_____
4. \$34,000	13.75%	30	_____	17. \$36,000	14.25%	30	_____
5. \$50,000	14.5%	25	_____	18. \$65,000	13.25%	25	_____
6. \$50,000	14.75%	25	_____	19. \$65,000	13.25%	30	_____
7. \$102,000	14.25%	25	_____	20. \$105,000	13.75%	25	_____
8. \$102,000	14.5%	25	_____	21. \$105,000	13.75%	20	_____
9. \$726,000	14.5%	25	_____	22. \$1,100,000	13.25%	25	_____
10. \$726,000	14.75%	25	_____	23. \$1,100,000	13.25%	30	_____
11. \$108,000	13.5%	30	_____	24. \$42,000	12.75%	25	_____
12. \$108,000	13.75%	30	_____	25. \$42,000	12.75%	30	_____
13. \$57,000	12.75%	30	_____	26. \$55,000	13.75%	25	_____



Reading Utility Meters

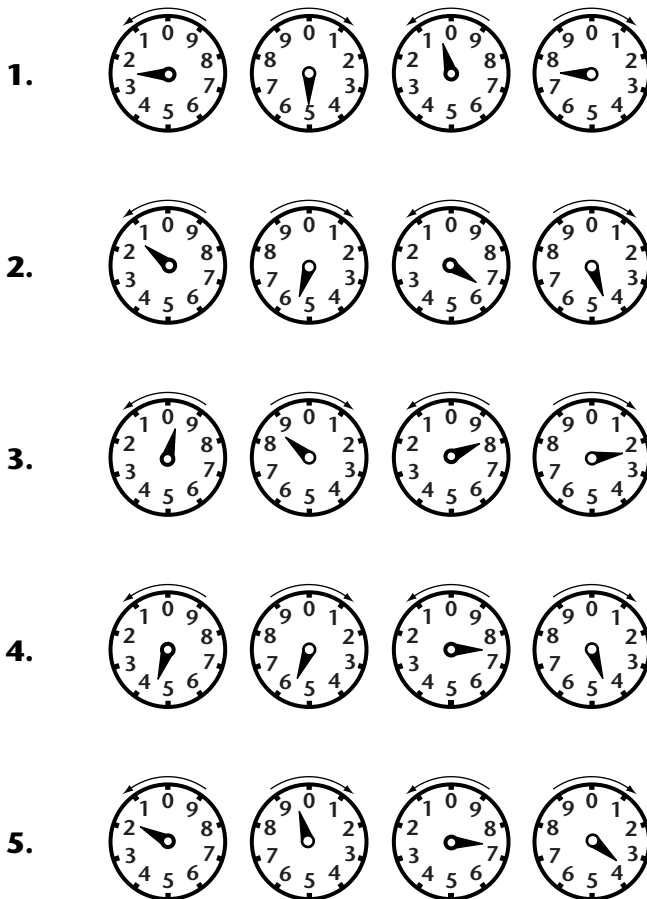
EXAMPLE


Begin with dial A. Read the number that the pointer has just passed.

Then read dial B. If the pointer is between numbers take the lower number. Even though the number appears to be exactly on a number, read the next lower number—unless the pointer to its right has passed zero. Dials C and D are read in the same way as dial B.

The dials here read 6811.

Directions Record the readings on these sample utility meters.



Subtraction of Whole Numbers

EXAMPLE $30,045 - 4,857 =$

Write this:
$$\begin{array}{r} 30,045 \leftarrow \text{Minuend} \\ - 4,857 \leftarrow \text{Subtrahend} \\ \hline 25,188 \leftarrow \text{Difference or Remainder} \end{array}$$

Directions Subtract.

1. $372 - 45 =$ _____

2. $754 - 586 =$ _____

3. $3,841 - 548 =$ _____

4. $9,004 - 486 =$ _____

5. $3,945 - 459 =$ _____

6. $5,108 - 4,960 =$ _____

7. $4,056 - 3,506 =$ _____

8. $50,400 - 38,404 =$ _____

9. $30,451 - 5,968 =$ _____

10. $84,452 - 9,574 =$ _____

11. $95,068 - 49,052 =$ _____

12. $89,502 - 9,495 =$ _____

13. $490,683 - 39,475 =$ _____

14. $10,237 - 9,340 =$ _____

15. $102,873 - 30,475 =$ _____

16. $340,900 - 12,009 =$ _____

17. $340,581 - 93,364 =$ _____

18. $200,319 - 92,338 =$ _____

19. $300,471 - 49,284 =$ _____

20. $100,000 - 20,594 =$ _____

21. $101,039 - 39,900 =$ _____

22. $944,032 - 94,475 =$ _____

23. $200,341 - 90,943 =$ _____

24. $837,529 - 84,750 =$ _____

25. $838,470 - 84,757 =$ _____

26. $580,334 - 84,758 =$ _____

27. $405,562 - 393,400 =$ _____

28. $344,163 - 12,419 =$ _____



Telephone Bills

EXAMPLE

Telephone bills are a total of charges for various services plus taxes.

Find the total monthly bill for the following charges: flat rate: \$19.68; caller ID: \$8.73; long distance \$3.78; and taxes: \$0.87.

$$\begin{array}{r}
 \$19.68 \\
 8.73 \\
 3.78 \\
 + \quad .87 \\
 \hline
 \$33.06
 \end{array}$$

The total monthly telephone bill is \$33.06.

Directions Find the total telephone bill for the services listed below.

	Flat Rate	Optional Services	Long Distance	Taxes	Monthly Bill
1.	\$14.78	\$14.88	\$1.43	\$0.67	_____
2.	\$18.34	\$3.77	\$6.09	\$1.44	_____
3.	\$24.77	\$7.39	\$11.53	\$3.27	_____
4.	\$19.34	\$6.13	\$27.84	\$7.33	_____
5.	\$14.55	\$5.99	\$88.92	\$1.63	_____
6.	\$18.90	\$5.08	\$127.55	\$2.79	_____
7.	\$22.02	\$4.07	none	\$3.34	_____
8.	\$24.11	\$11.52	\$37.67	\$5.19	_____
9.	\$13.05	\$38.41	\$44.80	\$4.78	_____
10.	\$18.79	\$9.62	\$2.36	\$0.98	_____
11.	\$33.71	\$11.74	\$4.87	\$3.65	_____
12.	\$19.33	\$21.94	\$9.78	\$2.87	_____
13.	\$13.38	\$12.87	\$41.64	\$3.21	_____
14.	\$9.22	\$33.62	\$209.76	\$10.56	_____
15.	\$7.29	\$5.81	\$123.65	\$5.76	_____
16.	\$9.12	none	\$77.99	\$4.32	_____
17.	\$18.73	\$4.50	\$12.09	\$0.78	_____
18.	\$14.88	\$8.37	\$2.78	\$0.56	_____
19.	\$28.69	\$9.99	\$32.64	\$1.32	_____
20.	\$33.68	\$10.68	\$1.11	\$1.45	_____



Mortgage Insurance

EXAMPLE

Franklin had a \$75,900 mortgage for a term of 30 years. He died in the 25th year. Use the chart below to find the benefit of his mortgage insurance.

Percent of Mortgage Covered

Policy Year in which Death Occurs	30 Year Term	25 Year Term	20 Year Term	15 Year Term	10 Year Term
1	100%	100%	100%	100%	100%
5	94%	92%	88%	80%	66%
10	84%	77%	67%	49%	12%
15	71%	59%	41%	9%	
20	55%	36%	8%		
25	34%	7%			
30	7%				

Step 1 Read Chart

For a 30 year term mortgage,
the benefit in the 25th year is 34%

Step 2 Multiply the mortgage by 34%

$$\begin{array}{r} \$75,900 \\ \times .34 \\ \hline \$25,806 \end{array}$$

The insurance company paid a benefit of \$25,806.

Directions Find the amount paid by the insurance company in each of these situations.

	Policy Year in Which Death Occurs	Term of Mortgage	Amount of Mortgage	Benefit Paid
1.	15	20	\$50,000	_____
2.	5	25	\$45,000	_____
3.	5	20	\$85,000	_____
4.	25	30	\$132,600	_____
5.	5	10	\$10,500	_____
6.	15	25	\$101,900	_____
7.	1	20	\$32,700	_____
8.	10	25	\$87,900	_____
9.	30	30	\$145,800	_____
10.	5	15	\$52,900	_____
11.	20	25	\$98,900	_____
12.	15	30	\$123,500	_____



Solving for the Percentage

rate base percentage
 ↓ ↓ ↓

EXAMPLE

23% of 35 is what number?

$$0.23 \times 35 = N$$

$$8.05 = N$$

Step 1: Write the rate as a decimal.**Step 2:** Multiply the rate times the base.**EXAMPLE**

2% of 5.8 is what number?

$$0.02 \times 5.8 = N$$

$$0.116 = N$$

Directions Solve for the percentage.

1. 4% of 37 is what number? _____
2. 34% of 5.7 is what number? _____
3. 5% of 6 is what number? _____
4. 7.4% of 200 is what number? _____
5. 25% of 0.57 is what number? _____
6. 5.6% of 283 is what number? _____
7. 55% of 104 is what number? _____
8. 48% of 2003 is what number? _____
9. 90% of 203 is what number? _____
10. 0.38% of 74 is what number? _____
11. 50% of 300 is what number? _____
12. 6.01% of 0.01 is what number? _____
13. 110% of 90 is what number? _____
14. 85% of 3000 is what number? _____
15. 40% of 0.92 is what number? _____
16. 57.5% of 70.5 is what number? _____
17. 75% of 10 is what number? _____
18. 60% of 9 is what number? _____
19. 7.2% of 44 is what number? _____
20. 5% of 6.9 is what number? _____
21. 41% of 54.18 is what number? _____
22. 36% of 0.102 is what number? _____
23. 70% of 384 is what number? _____
24. 6.3% of 7.02 is what number? _____
25. 0.9% of 7 is what number? _____
26. 38% of 4.7 is what number? _____
27. 0.5% of 100 is what number? _____
28. 8% of 16 is what number? _____



Addition of Whole Numbers

EXAMPLE $234 + 349 + 1,603 =$

Write this:

$$\begin{array}{r} 234 \\ 349 \\ + 1,603 \\ \hline 2,186 \end{array}$$

← Addends
← Sum

Directions Add.

1. $23 + 48 + 506 =$ _____

10. $7,834 + 6,539 + 92,389 =$ _____

2. $5 + 94 + 80 + 3 =$ _____

11. $283 + 7,485 + 3,774 =$ _____

3. $5 + 74 + 102 + 49 =$ _____

12. $560 + 374 + 6,005 =$ _____

4. $203 + 448 + 509 =$ _____

13. $4,759 + 5,768 + 30,481 =$ _____

5. $429 + 747 + 67 =$ _____

14. $49,036 + 87,630 + 390,476 =$ _____

6. $690 + 38 + 441 + 8 =$ _____

15. $30,457 + 58,604 + 80,512 =$ _____

7. $3,594 + 37 + 380 =$ _____

16. $38,405 + 50,067 + 40,584 =$ _____

8. $405 + 393 + 4,488 =$ _____

17. $203,753 + 859,302 + 702,641 =$ _____

9. $48,204 + 74,503 + 302 =$ _____

18. $5,037,583 + 7,458,324 + 37,495,621 =$



Purchasing a Used Car

Directions Compute the answers to these problems. Write your answer on the line.

1. Derek buys a \$2,230 car with a \$580 trade-in. How much extra money does he pay? _____
2. Lisa agrees to pay \$157.28 per month for her car. How much will she pay in nine months? _____
3. Marti's car has a sale price of \$6,630. How much money does she pay after a \$1,090 rebate? _____
4. Tashia's car is guaranteed for 30 days or 4,000 miles (whichever comes first). She bought the car on April 10 with 48,397 miles on it. On May 8, the odometer reads 52,405. Is the guarantee still in effect? _____
5. The ad reads, "\$725 or best offer." If your offer of \$580 is accepted, how much money will you save? _____
6. Calvin's car is guaranteed for 30 days or 4,500 miles (whichever comes first). He bought the car on July 7 with 38,472 miles. On August 7, the odometer reads 42,950. Is the guarantee still in effect? _____
7. The car Andres wants to buy has a list price of \$7,614.11. The dealer will sell it at 5% off. How much must he pay? _____
8. Your car invoice reads: "Price \$1,492.50, dealer preparation \$45.00, transportation \$54.50, undercoat \$148.80, 60-day guarantee \$95.00, tape deck \$238.73." What is the final cost? _____
9. When Viviana purchases her car, she agrees to pay \$126.00 down and \$108.83 per month for one year. How much will she pay for the car? _____
10. Tam paid the dealer \$1,410.00 cash for his car. He also paid \$40.00 for license plates, \$154.30 for insurance, and 6% sales tax. How much did Tam pay for all these charges? _____



Financing a Car

EXAMPLE

Antigone purchased a car for \$26,500.00 and financed the payments. After paying a \$6,500.00 down payment, she financed the rest for 72 months at \$456.49 per month. What was the deferred price of Antigone's car and the total interest she paid?

Step 1 Multiply to find total monthly payments

$$\begin{array}{r} \$456.49 \text{ Monthly Payment} \\ \times 72 \text{ Months} \\ \hline \$32,867.28 \text{ Total Monthly Payments} \end{array}$$

Step 2 Add to find deferred price

$$\begin{array}{r} \$32,867.28 \text{ Total Monthly Payments} \\ + 6,500.00 \text{ Down Payment} \\ \hline \$39,367.28 \text{ Deferred Price} \end{array}$$

Step 3 Subtract to find Interest Paid

$$\begin{array}{r} \$39,367.28 \text{ Deferred Price} \\ - 26,500.00 \text{ Cash Price} \\ \hline \$12,867.28 \text{ Interest Paid} \end{array}$$

The deferred price of Antigone's car is \$39,367.28 and the total interest paid is \$12,867.28.

Directions Find the total monthly payment, the deferred price and the interest paid.

	Cash Price	Down Payment	Monthly Payment	Months to Pay	Total Monthly Payments	Deferred Price	Interest Paid
1.	\$26,000	\$6,000	\$456.49	72	_____	_____	_____
2.	\$14,000	\$4,000	\$252.13	60	_____	_____	_____
3.	\$9,250	\$1,250	\$215.67	48	_____	_____	_____
4.	\$33,500	\$3,500	\$613.35	72	_____	_____	_____
5.	\$17,999	\$2,999	\$345.04	60	_____	_____	_____
6.	\$23,700	\$3,700	\$432.05	72	_____	_____	_____
7.	\$22,899	\$2,899	\$366.21	72	_____	_____	_____
8.	\$15,500	\$5,500	\$219.70	60	_____	_____	_____
9.	\$21,769	\$3,169	\$390.29	60	_____	_____	_____
10.	\$44,600	\$4,600	\$912.98	72	_____	_____	_____
11.	\$25,800	\$5,800	\$481.66	60	_____	_____	_____
12.	\$17,895	\$2,895	\$378.20	60	_____	_____	_____
13.	\$31,700	\$3,700	\$621.75	72	_____	_____	_____
14.	\$29,999	\$2,999	\$567.43	72	_____	_____	_____
15.	\$15,630	\$10,000	\$163.34	48	_____	_____	_____
16.	\$22,999	\$3,999	\$457.58	60	_____	_____	_____

Automobile Liability Insurance

EXAMPLE

Jerod had \$100,000/\$150,000 liability coverage. He injured three people in an accident: \$30,000; \$50,000; and \$110,000. Find the insurance payment. Find Jerod's payment.

Coverage:

\$100,000/\$150,000

Amounts Due Victims:

\$30,000; \$50,000;
\$110,000

Insurance Company's Payment

Person 1: \$ 30,000

Person 2: 50,000

Person 3: +100,000 Policy limit*

Total: \$180,000

–150,000 Policy limit*

\$ 30,000

Driver's Payment

Person 3: \$10,000*

+30,000

\$40,000

*Remember, the insurance company only pays up to the policy limit. In this case, Jerod would have to pay the \$10,000 that goes over the limit for injury to any one person (\$110,000 – \$100,000 limit), as well as the \$30,000 that goes over the policy limit.

Directions For each case below, compute the insurance company's payment and the driver's payment, if any.

Coverage	Amounts Due Victims	Insurance Company's Payment	Driver's Payment
1. \$50,000/\$150,000	\$20,000; \$12,500; \$12,500; \$60,000	_____	_____
2. \$100,000/\$150,000	\$110,000; \$60,000; \$103,000	_____	_____
3. \$75,000/\$125,000	\$79,000; \$52,500	_____	_____
4. \$150,000/\$300,000	\$120,000; \$155,000	_____	_____
5. \$75,000/\$125,000	\$75,000; \$81,000; \$3,500; \$105,000	_____	_____
6. \$125,000/\$225,000	\$112,500	_____	_____
7. \$150,000/\$250,000	\$4,500; \$165,000; \$90,000	_____	_____
8. \$100,000/\$150,000	\$130,000; \$109,000; \$5,000	_____	_____
9. \$150,000/\$200,000	\$160,000	_____	_____
10. \$150,000/\$225,000	\$180,000; \$6,000; \$180,000	_____	_____
11. \$50,000/\$200,000	\$7,000; \$60,000; \$7,000	_____	_____
12. \$75,000/\$125,000	\$82,500; \$52,500; \$97,500	_____	_____
13. \$100,000/\$225,000	\$116,000; \$50,000	_____	_____



Reading an Odometer

EXAMPLE

0	2	8	1	4	4	3
---	---	---	---	---	---	---

Shanoma's odometer reads 28144.3. Write the reading in words.

Step 1 Place the decimal point and a comma in the number. 28,144.3

Step 2 Write the number in words.

The reading is twenty-eight thousand one hundred forty-four and three tenths miles.

Directions Write the odometer reading in words.

- | | | | | | | | | |
|----|---|---|---|---|---|---|---|-------|
| 1. | 0 | 2 | 4 | 6 | 7 | 9 | 1 | _____ |
| 2. | 1 | 3 | 6 | 8 | 1 | 2 | 3 | _____ |
| 3. | 0 | 1 | 3 | 0 | 6 | 5 | 9 | _____ |
| 4. | 1 | 7 | 7 | 3 | 0 | 1 | 7 | _____ |
| 5. | 0 | 9 | 0 | 1 | 5 | 7 | 2 | _____ |

Directions Round to the nearest thousand miles. Write the number in words.

- | | | | | | | | | |
|-----|---|---|---|---|---|---|---|-------|
| 6. | 0 | 5 | 7 | 1 | 9 | 2 | 8 | _____ |
| 7. | 0 | 8 | 8 | 7 | 6 | 8 | 0 | _____ |
| 8. | 1 | 3 | 4 | 2 | 8 | 7 | 4 | _____ |
| 9. | 0 | 0 | 2 | 6 | 5 | 0 | 6 | _____ |
| 10. | 1 | 2 | 9 | 4 | 4 | 3 | 1 | _____ |



Average Miles Driven per Year

EXAMPLE

Dakota's odometer reads 14,579.2 miles. His car is 3 years old. Find the average number of miles he drove per year. Round to the nearest hundred miles.

0	1	4	5	7	9	2
---	---	---	---	---	---	---

Step 1 Divide to the 10 miles place.

$$\begin{array}{r} 4,859. \\ 3 \overline{) 14,579.2} \\ \underline{12} \\ 25 \\ \underline{24} \\ 17 \\ \underline{15} \end{array}$$

Step 2 Round off to the 100 miles place.

4,900 miles

Dakota drove an average of 4,900 miles per year.

Directions Find the average number of miles driven per year for each car. Round your answer to the nearest hundred miles.

	Odometer Reading	Age of Car in Years	Average Number of Miles
1.	0 0 2 7 5 8 0	2	_____
2.	0 0 8 5 7 3 7	4	_____
3.	0 8 7 5 6 2 3	9	_____
4.	0 2 6 7 3 0 3	2	_____
5.	1 3 2 5 7 3 8	9	_____
6.	0 0 9 5 3 1 5	5	_____
7.	0 4 6 2 0 4 7	3	_____
8.	0 9 3 4 5 6 2	6	_____
9.	0 3 4 5 7 3 1	4	_____
10.	1 2 3 4 5 8 0	12	_____
11.	1 0 0 3 5 2 6	10	_____
12.	0 5 3 5 1 1 7	8	_____
13.	0 9 8 7 6 2 4	8	_____
14.	0 1 9 6 2 7 0	3	_____
15.	0 4 6 2 8 7 1	5	_____
16.	0 0 0 7 2 6 0	1	_____



Number of Miles Traveled

EXAMPLE

Samuel's odometer reads 456187.5 at the beginning of a trip. At the end, it reads 459733.2. How far did Samuel travel to the nearest mile?

To find the distance, subtract the beginning reading from the ending reading.

$$\begin{array}{r} 459,733.2 \\ - 456,187.5 \\ \hline 3,545.7 \end{array}$$

Samuel traveled 3,546 miles.

Directions Find the number of miles traveled. Round to the nearest mile.

	Beginning	End	Miles Traveled
1.	004561.9	004783.9	_____
2.	194766.2	195351.6	_____
3.	022945.5	023010.3	_____
4.	010304.0	010728.2	_____
5.	115678.5	116283.4	_____
6.	109357.7	109499.6	_____
7.	034811.9	035168.8	_____
8.	044122.6	046587.3	_____
9.	000347.2	001173.8	_____
10.	045821.5	045911.6	_____
11.	100682.6	101773.2	_____
12.	029613.7	030010.5	_____
13.	075329.4	075987.7	_____
14.	004729.6	013844.4	_____
15.	039559.8	040688.0	_____
16.	107603.4	108933.2	_____
17.	110110.0	120095.7	_____
18.	003526.5	003822.8	_____
19.	035583.2	039533.5	_____
20.	118395.3	120554.7	_____



Division of Whole Numbers Without Remainders

EXAMPLE $1,404 \div 6 =$

Write this:

$$\begin{array}{r} 234 \leftarrow \text{Quotient} \\ \text{Divisor } \rightarrow 6 \overline{)1,404} \leftarrow \text{Dividend} \\ \underline{-12} \\ 20 \\ \underline{-18} \\ 24 \\ \underline{-24} \end{array}$$

EXAMPLE $3,120 \div 12 =$

Write this:

$$\begin{array}{r} 260 \\ 12 \overline{)3,120} \\ \underline{-24} \\ 72 \\ \underline{-72} \end{array}$$

EXAMPLE $11,707 \div 23 =$

Write this:

$$\begin{array}{r} 509 \\ 23 \overline{)11,707} \\ \underline{-115} \\ 207 \\ \underline{-207} \end{array}$$

Directions Divide.

1. $9 \overline{)2,439}$

2. $7 \overline{)3,164}$

3. $8 \overline{)1,648}$

4. $7 \overline{)2,737}$

5. $8 \overline{)4,984}$

6. $13 \overline{)6,799}$

7. $13 \overline{)3,965}$

8. $17 \overline{)1,802}$

9. $29 \overline{)17,835}$

10. $23 \overline{)16,330}$

11. $31 \overline{)17,484}$

12. $28 \overline{)61,880}$

Directions Write these in the standard form and divide.

13. $4,173 \div 39 =$

14. $8,316 \div 18 =$

15. $5,136 \div 48 =$



Multiplication of Whole Numbers

EXAMPLE $273 \times 49 =$

Write this:

273	←	Factors
$\times 49$		
$\hline 2457$	←	Partial Products
$+ 1092$	←	Product
$\hline 13,377$		

Directions Multiply.

1.
$$\begin{array}{r} 239 \\ \times 8 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 402 \\ \times 84 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 4,852 \\ \times 27 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 203 \\ \times 12 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 847 \\ \times 94 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 9,050 \\ \times 91 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 485 \\ \times 31 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 475 \\ \times 47 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 2,961 \\ \times 102 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 349 \\ \times 11 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 485 \\ \times 51 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 5,706 \\ \times 313 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 803 \\ \times 72 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3,102 \\ \times 18 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 4,066 \\ \times 116 \\ \hline \end{array}$$

Directions Write these in the vertical form and multiply.

16. $3,041 \times 325 =$

17. $4,712 \times 482 =$

18. $3,012 \times 384 =$



Computing the Fuel Needed

EXAMPLE Twanda is planning a 320 mile trip. Her car's EPA rating is 41 mpg on the highway. How many gallons of gas will she require for this trip? Round to the nearest gallon.

$$\begin{array}{r} 7.8 \\ 41 \overline{) 320.0} \end{array} \sim 8 \text{ gallons needed for the trip}$$

Miles

Twanda will need about 8 gallons of gas for this trip.

Directions Find the amount of fuel needed for each trip. Round your answer to the nearest gallon.

	Distance	Mileage Rating	Amount of Fuel
1.	253 miles	22 mpg	_____
2.	119 miles	25 mpg	_____
3.	610 miles	18 mpg	_____
4.	784 miles	32 mpg	_____
5.	223 miles	18 mpg	_____
6.	483 miles	25 mpg	_____
7.	2,194 miles	35 mpg	_____
8.	244 miles	33 mpg	_____
9.	632 miles	29 mpg	_____
10.	2,048 miles	38 mpg	_____
11.	653 miles	28 mpg	_____
12.	2,639 miles	26 mpg	_____
13.	877 miles	39 mpg	_____
14.	902 miles	44 mpg	_____
15.	1,763 miles	42 mpg	_____
16.	3,779 miles	31 mpg	_____
17.	3,992 miles	25 mpg	_____
18.	14,329 miles	41 mpg	_____
19.	296 miles	34 mpg	_____
20.	118 miles	14 mpg	_____



Computing Average Speed

EXAMPLE

Arthur drives 157 miles in 4 hours and 16 minutes. Find his average rate of speed.

Step 1 Convert minutes to a decimal part of an hour by dividing by 60. Round to the nearest tenth of an hour

$$\begin{array}{r} .26 \text{ Hour} \sim 0.3 \text{ Hour} \\ 60 \overline{) 16.0} \text{ Minutes} \end{array}$$

Step 2 Write the hours as a decimal number.

$$\begin{array}{l} 4 \text{ hours and } 16 \text{ minutes} = \\ 4 \text{ hours} + 0.3 \text{ hours} = 4.3 \text{ hours} \end{array}$$

Step 3 Divide the miles by the hours

$$\begin{array}{r} 36.5 \sim 37 \text{ miles per hour} \\ 4.3 \overline{) 157.0} \end{array}$$

Arthur's average rate of speed is 37 miles per hour.

Directions Find the average speed for these trips. Round your answer to the nearest mile per hour.

	Distance	Time	Average Speed
1.	92 miles	1 hours, 55 minutes	_____
2.	437 miles	10 hours, 15 minutes	_____
3.	906 miles	30 hours, 30 minutes	_____
4.	83 miles	1 hours, 47 minutes	_____
5.	143 miles	3 hours, 10 minutes	_____
6.	892 miles	25 hours, 15 minutes	_____
7.	3,445 miles	86 hours, 14 minutes	_____
8.	572 miles	14 hours, 35 minutes	_____
9.	998 miles	30 hours, 30 minutes	_____
10.	1,653 miles	34 hours, 55 minutes	_____
11.	285 miles	5 hours, 16 minutes	_____
12.	188 miles	4 hours, 12 minutes	_____
13.	621 miles	15 hours, 14 minutes	_____
14.	490 miles	9 hours, 30 minutes	_____
15.	1,477 miles	29 hours, 30 minutes	_____



Computing Travel Time

EXAMPLE

Clifford plans a trip of 304 miles. He expects to be able to average 50 miles per hour. How much time should Clifford expect the trip to take?

Step 1 Divide the miles by the average speed. Round to the nearest hundredth of an hour.

$$\begin{array}{r} 6.08 \text{ Hours} \\ 50 \overline{) 304.00} \text{ Miles} \end{array}$$

Step 2 Convert the decimal part of the quotient to minutes by multiplying it by 60.

$$\begin{array}{r} .08 \text{ Hour} \\ \times 60 \text{ Minutes per hour} \\ \hline 4.80 \sim 5 \text{ minutes} \end{array}$$

Clifford's trip should take about 6 hours and 5 minutes.

Directions Find the travel time for each of these trips. Round your answer to the nearest minute.

	Distance	Average Speed	Estimated Time for Trip
1.	450 miles	30 mph	_____
2.	450 miles	35 mph	_____
3.	450 miles	40 mph	_____
4.	450 miles	45 mph	_____
5.	450 miles	55 mph	_____
6.	100 miles	55 mph	_____
7.	200 miles	55 mph	_____
8.	300 miles	55 mph	_____
9.	400 miles	55 mph	_____
10.	500 miles	55 mph	_____
11.	700 miles	37 mph	_____
12.	700 miles	42 mph	_____
13.	700 miles	47 mph	_____
14.	700 miles	52 mph	_____
15.	700 miles	57 mph	_____
16.	1,000 miles	55 mph	_____



Buying Gasoline

EXAMPLE

Barry has \$15.00. He wants to buy gas at \$0.99⁹. How many gallons can he buy?

Step 1 Write the price of the gas as a decimal. $\$0.99^9 = \0.999

Step 2 Divide the amount of money by the price of one gallon of gas. $\begin{array}{r} 15.01 \sim 15.0 \text{ gallons} \\ .999 \overline{) 15.000\ 00} \end{array}$

Barry is able to purchase 15.0 gallons.

Directions Find the amount of gas you can buy with each amount of money. Round your answer to the nearest tenth of a gallon.

	Amount of Money	Cost per Gallon of Gasoline	Gallons of Gas
1.	\$5	\$1.029	_____
2.	\$25	\$1.159	_____
3.	\$35	\$1.199	_____
4.	\$10	\$1.059	_____
5.	\$15	\$1.079	_____
6.	\$25	\$1.189	_____
7.	\$13	\$.889	_____
8.	\$22	\$1.219	_____
9.	\$12	\$1.049	_____
10.	\$16	\$1.129	_____
11.	\$21	\$1.149	_____
12.	\$20	\$1.129	_____
13.	\$30	\$1.319	_____
14.	\$24	\$1.279	_____
15.	\$18	\$1.089	_____
16.	\$8	\$1.219	_____
17.	\$16	\$1.139	_____
18.	\$29	\$1.199	_____
19.	\$33	\$1.209	_____
20.	\$22	\$1.099	_____



Repairing Cars

EXAMPLE

Erika Jones had the PCV valve and rear wheel bearings replaced on her car. To find her total bill, you must:

Step 1: Fill in the parts and work done.

Step 2: Find the price of parts and hours worked from the flat rate chart.

Step 3: Multiply hours of labor times \$60, and compute the sales tax of 6% on the parts only.

Step 4: Add to find the total bill

NAME <u>Erika Jones</u>		DATE <u>Oct. 23</u>		
ADDRESS <u>3309 Mace St., Baltimore</u>		ZIP CODE <u>21206</u>		
PARTS	\$ PRICE	HOURS	DESCRIPTION	LABOR
PCV valve	\$7 50	.4	Replace PCV valve	\$24 00
Rear wheel bearings	45 62	1.1	Replace rear wheel bearings	66 00
FRIENDLY MOTORS			MECHANICAL LABOR	\$90 00
"SALES, SERVICE, & PARTS" AUTHORIZED DEALER			PARTS	53 12
			SALES TAX	3 19
			TOTAL	\$146 31

Flat Rate Chart

Time (in hours)	Repairs	Parts	Time (in hours)	Repairs	Parts
.4	Replace PCV valve	\$ 7.50	5.2	Replace clutch	180.80
2.1	Complete tune-up	127.80	1.5	Replace front brake pads	32.95
.5	Align headlights	0	2.5	Install roof rack	126.85
1.7	Fix gas tank leak (sealant)	15.00	.7	Align the front end	0
1.5	Tighten steering wheel	0	.7	Replace muffler, tail pipe	160.00
.7	Recharge air conditioner and check for leaks (refrigerant)	30.00	3.1	Carburetor overhaul	0
			1.1	Replace rear wheel bearings	45.62

Directions Fill out a car repair order form for this repair. Charge \$60 per hour for labor and 6% sales tax. Do not charge sales tax on labor. Make up address and date.

1. Frank Davis
 Replace PCV valve
 Replace clutch
 Replace front brake pads
 Complete tuneup

NAME _____		DATE _____		
ADDRESS _____		ZIP CODE _____		
PARTS	\$ PRICE	HOURS	DESCRIPTION	LABOR
FRIENDLY MOTORS			MECHANICAL LABOR	
"SALES, SERVICE, & PARTS" AUTHORIZED DEALER			PARTS	
			SALES TAX	
			TOTAL	

Average Calories per Day

EXAMPLE

On seven consecutive days Reynaldo consumed the following number of calories:

Sunday	2,300	Thursday	3,290
Monday	3,500	Friday	2,095
Tuesday	2,135	Saturday	2,487
Wednesday	1,960		

What his average caloric intake per day?

Step 1 Find the total number of calories.

$$\begin{array}{r}
 2,300 \\
 3,500 \\
 2,135 \\
 1,960 \\
 3,290 \\
 2,095 \\
 + 2,487 \\
 \hline
 17,767
 \end{array}$$

Step 2 Divide by 7 days

$$\begin{array}{r}
 2,538 \text{ Calories per day} \\
 7 \overline{) 17,767 \text{ Calories in a week}}
 \end{array}$$

On average, Reynaldo consumed 2,538 calories per day.

Directions Find the average number of calories consumed per day in each case. Round your answer to the nearest calorie.

Days	Calories per Day	Total Number of Calories in a Week	Average Number of Calories per Day	Days	Calories per Day	Total Number of Calories in a Week	Average Number of Calories per Day
1. Sunday Monday Tuesday Wednesday Thursday Friday Saturday	3,200			Thursday	1,994		
	1,975			Friday	2,055		
	2,010			Saturday	3,605		
	2,234			3. Sunday Monday Tuesday Wednesday Thursday Friday Saturday	2,678		
	3,610				2,057		
	1,800				2,145		
	2,550				2,301		
2. Sunday Monday Tuesday Wednesday	2,478			3,200			
	3,167			2,804			
	2,068			3,503			
	2,173						



Renaming to Lowest Terms

EXAMPLE

$$\frac{12}{16} = \frac{12 \div 4}{16 \div 4} = \frac{3}{4}$$

Divide the numerator and the denominator by 4 because 4 is a common factor of 12 and 16.

EXAMPLE

$$3\frac{12}{16} = 3 + \frac{12}{16} = 3 + \frac{3}{4} = 3\frac{3}{4}$$

Rename $\frac{12}{16}$ as shown in the first example.

Directions Rename each fraction to the lowest terms.

1. $\frac{8}{10} =$

9. $\frac{28}{38} =$

17. $\frac{42}{57} =$

25. $\frac{14}{18} =$

33. $\frac{18}{63} =$

2. $10\frac{10}{12} =$

10. $\frac{26}{36} =$

18. $6\frac{14}{35} =$

26. $\frac{28}{35} =$

34. $\frac{48}{72} =$

3. $\frac{12}{36} =$

11. $\frac{52}{64} =$

19. $17\frac{30}{54} =$

27. $\frac{84}{108} =$

35. $\frac{54}{68} =$

4. $\frac{16}{18} =$

12. $\frac{13}{65} =$

20. $11\frac{2}{10} =$

28. $9\frac{12}{20} =$

36. $\frac{72}{104} =$

5. $\frac{22}{44} =$

13. $\frac{9}{21} =$

21. $\frac{18}{81} =$

29. $\frac{32}{48} =$

37. $\frac{60}{84} =$

6. $\frac{10}{16} =$

14. $2\frac{20}{42} =$

22. $\frac{27}{81} =$

30. $\frac{56}{63} =$

38. $\frac{39}{91} =$

7. $3\frac{5}{25} =$

15. $\frac{16}{24} =$

23. $\frac{40}{56} =$

31. $\frac{15}{51} =$

39. $7\frac{28}{42} =$

8. $8\frac{14}{22} =$

16. $\frac{15}{21} =$

24. $\frac{24}{56} =$

32. $\frac{45}{57} =$

40. $23\frac{76}{84} =$



The Key to Proportion

EXAMPLE

You can use cross products to find an unknown term in a proportion.

$$\frac{2}{5} = \frac{\blacksquare}{20}$$

Step 1 Find one cross product.

$$\frac{\boxed{2}}{5} = \frac{\blacksquare}{\boxed{20}} \longrightarrow 2 \times 20 = 40$$

Step 2 To find the missing term, divide the cross product by the other term.

$$\frac{\boxed{2}}{5} = \frac{\blacksquare}{\boxed{20}} \quad \begin{array}{l} 8 \text{ Missing term} \\ 5 \overline{)40} \text{ Cross product} \end{array}$$

Step 3 Write the complete proportion.

$$\frac{2}{5} = \frac{8}{20}$$

Step 4 Check by comparing cross products.

$$\begin{array}{cc} \boxed{2} & \boxed{8} \\ \boxed{5} & \boxed{20} \end{array} \quad \begin{array}{cc} 5 \times 8 & 2 \times 20 \\ 40 & 40 \end{array}$$

Directions Find the unknown term in each proportion.

1. $\frac{1}{3} = \frac{\blacksquare}{9}$

5. $\frac{2}{4} = \frac{6}{\blacksquare}$

9. $\frac{4}{\blacksquare} = \frac{2}{5}$

13. $\frac{5}{16} = \frac{20}{\blacksquare}$

17. $\frac{6}{18} = \frac{\blacksquare}{9}$

2. $\frac{2}{7} = \frac{12}{\blacksquare}$

6. $\frac{4}{\blacksquare} = \frac{16}{32}$

10. $\frac{5}{20} = \frac{20}{\blacksquare}$

14. $\frac{3}{5} = \frac{\blacksquare}{30}$

18. $\frac{\blacksquare}{12} = \frac{18}{24}$

3. $\frac{3}{4} = \frac{6}{\blacksquare}$

7. $\frac{3}{\blacksquare} = \frac{9}{45}$

11. $\frac{3}{7} = \frac{24}{\blacksquare}$

15. $\frac{18}{\blacksquare} = \frac{9}{7}$

19. $\frac{48}{90} = \frac{16}{\blacksquare}$

4. $\frac{1}{\blacksquare} = \frac{2}{6}$

8. $\frac{18}{\blacksquare} = \frac{9}{7}$

12. $\frac{2}{5} = \frac{\blacksquare}{25}$

16. $\frac{4}{9} = \frac{8}{\blacksquare}$

20. $\frac{108}{18} = \frac{\blacksquare}{3}$



Division of Fractions

EXAMPLE

$$\frac{5}{6} \div \frac{7}{10} =$$

Divisor

Write this: $\frac{5}{6} \times \frac{10}{7} = \frac{25}{21} = 1\frac{4}{21}$

Rule: Invert the divisor $\frac{7}{10}$ to $\frac{10}{7}$ and multiply.

EXAMPLE

$$2\frac{1}{2} \div 3\frac{1}{4} =$$

Write this: $\frac{5}{2} \div \frac{13}{4} =$

$$\frac{5}{2} \times \frac{4}{13} = \frac{10}{13}$$

Express mixed numbers as improper fractions.

Invert the divisor. Then multiply. Simplify if possible.

Directions Divide. Simplify your answers.

1. $\frac{5}{7} \div \frac{5}{6} =$

7. $\frac{8}{9} \div \frac{5}{6} =$

13. $2\frac{3}{4} \div \frac{3}{8} =$

19. $\frac{5}{8} \div 2\frac{3}{7} =$

2. $\frac{3}{5} \div \frac{1}{5} =$

8. $\frac{7}{10} \div \frac{14}{25} =$

14. $1\frac{5}{6} \div \frac{13}{12} =$

20. $8\frac{2}{3} \div \frac{13}{18} =$

3. $\frac{2}{7} \div \frac{4}{14} =$

9. $\frac{6}{9} \div \frac{12}{18} =$

15. $2\frac{1}{5} \div \frac{22}{10} =$

21. $5\frac{1}{3} \div 1\frac{1}{3} =$

4. $\frac{5}{8} \div \frac{6}{8} =$

10. $\frac{2}{3} \div \frac{1}{5} =$

16. $3\frac{2}{5} \div \frac{34}{15} =$

22. $7\frac{1}{3} \div \frac{2}{4} =$

5. $\frac{7}{18} \div \frac{4}{9} =$

11. $1\frac{8}{9} \div \frac{5}{6} =$

17. $1\frac{2}{7} \div 1\frac{1}{5} =$

23. $5\frac{3}{5} \div \frac{14}{30} =$

6. $\frac{3}{13} \div \frac{2}{5} =$

12. $\frac{10}{11} \div \frac{5}{6} =$

18. $3\frac{2}{7} \div 1\frac{2}{8} =$

24. $9\frac{2}{6} \div \frac{2}{8} =$



Renaming Fractions as Percents

EXAMPLERename $\frac{6}{7}$ as a percent.

Step 1 Divide the numerator by the denominator and round to the nearest thousandths.

$$\begin{array}{r} 0.8571 \approx 0.857 \\ 7 \overline{)6.0000} \\ \underline{-56} \\ 40 \\ \underline{-35} \\ 50 \\ \underline{-49} \\ 10 \\ \underline{-7} \end{array}$$

Step 2 Move the decimal point two places to the right and write a percent symbol.

$$0.857$$

$$85.7\%$$

Move two places.

Write the % symbol.

Directions Rename these fractions as percents.

1. $\frac{7}{8} =$

6. $\frac{5}{12} =$

11. $\frac{3}{5} =$

16. $\frac{11}{13} =$

21. $\frac{5}{11} =$

2. $\frac{2}{3} =$

7. $\frac{6}{13} =$

12. $\frac{2}{9} =$

17. $\frac{10}{11} =$

22. $\frac{4}{13} =$

3. $\frac{4}{5} =$

8. $\frac{4}{7} =$

13. $\frac{5}{16} =$

18. $\frac{1}{9} =$

23. $\frac{1}{6} =$

4. $\frac{6}{9} =$

9. $\frac{2}{7} =$

14. $\frac{2}{11} =$

19. $\frac{7}{9} =$

24. $\frac{2}{13} =$

5. $\frac{1}{3} =$

10. $\frac{5}{8} =$

15. $\frac{7}{13} =$

20. $\frac{4}{9} =$

25. $\frac{5}{14} =$



Fat Grams and Calories

EXAMPLE

Dontee eats some pepperoni pizza. In a slice of pizza, there are 306 calories and 18 grams of fat. Each gram of fat supplies 9 calories. What percent of the calories in the pizza are from fat?

Step 1 Find the number of calories from fat.

$$18\text{g} \times 9 = 162 \text{ calories from fat}$$

Step 2 Write the fat proportion.

$$\frac{\text{Fat calories}}{\text{Total calories}} = \frac{\text{percent fat}}{100}$$

$$\frac{162}{306} = \frac{\text{percent fat}}{100}$$

Step 3 Simplify the ratios

$$\frac{162}{306} = \frac{\text{percent fat}}{100}$$

$$\frac{9}{17} = \frac{\text{percent fat}}{100}$$

Step 4 Solve the proportion

$$9 \times 100 \div 17 = 53\%$$

The fat calories are 53% of the pizza.

Directions Find what percent the fat calories are of the total calories in each food. Round to the nearest whole percent.

	Food	Total calories per serving	Grams of fat per serving	Percent of Fat per Serving
1.	Bagel, 1-3" diameter	163	1.4 g	
2.	Pita bread, 1 oz	77	0.3	
3.	Hamburger roll	123	2.2 g	
4.	Croissant, 1 oz	115	6.1 g	
5.	Pancakes, 2 plain	166	5.8 g	
6.	Waffle, 1 frozen	103	3.5 g	
7.	Muffin, 1 blueberry	110	4.0 g	
8.	English muffin	133	1.0 g	
9.	Green beans, 1 c cooked	35	0.2 g	
10.	Broccoli, 1 c raw	25	0.3 g	
11.	Cauliflower, 4 oz Raw	27	0.2 g	
12.	Celery, $\frac{1}{2}$ c raw	17	0.1 g	
13.	Spinach, 1 c cooked	57	0.4 g	
14.	Peach, 1	37	0.1 g	
15.	Pear, 1 Bartlett	98	0.7 g	



Exercise and Calories

EXAMPLE

According to the National Institutes of Health, the average number of calories spent per hour by a 150-pound person who rides a bicycle 6 miles per hour is 240 calories. The calories spent in a particular activity vary in proportion to one's body weight. For example, a 100-pound person burns $\frac{1}{3}$ fewer calories, and a 200-pound person burns $\frac{1}{3}$ more calories.

Find the average number of calories burned by a 100-pound person and a 200-pound person who ride bikes at 6 mph for one hour. Round your answer to the nearest calorie.

100-pound person

Think: $\frac{1}{3}$ fewer is about 33% fewer. Multiply by 100% minus 33%, or 67%
 $240 \text{ calories per hour} \times 67\% = 240 \times 0.67 = 160.8 \approx 161 \text{ cal./hr}$

200-pound person

Think: $\frac{1}{3}$ more is about 33% more. Multiply by 100% plus 33%, or 133%
 $240 \text{ calories per hour} \times 133\% = 240 \times 1.33 = 319.2 \approx 319 \text{ cal./hr}$

A 100-pound person burns an average of 161 calories per hour bicycling at 6 mph.

A 200-pound person burns an average of 319 calories per hour bicycling at 6 mph.

Directions Find the average number of calories a 100 lb person and a 200 lb person burn while engaged in the following activities. Round your answer to the nearest calorie.

	Activity (1 hour)	Calories burned by 150-lb person	Calories burned by 100-lb person	Calories burned by 200-lb person
1.	Running in place	650 cal./hr		
2.	Running 10 mph	1,280 cal./hr		
3.	Swimming 25 yds/min.	275 cal./hr		
4.	Swimming 50 yds/min.	500 cal./hr		
5.	Tennis-singles	400 cal./hr		
6.	Walking 2 mph	240 cal./hr		
7.	Walking 3 mph	320 cal./hr		
8.	Walking 4 1/2 mph	440 cal./hr		



Excercising to Lose Weight

EXAMPLE

Each extra pound in a person's body contains about 3,500 calories. One way to lose a pound is to exercise enough to burn 3,500 calories. Ricardo swims for 2 hours. How much weight does he lose? Use the chart to find the number of calories used in 1 hour.

Step 1

$$\begin{array}{r} 500 \text{ Calories} \\ \times 2 \text{ Hours} \\ \hline 1,000 \text{ Total calories used} \end{array} \quad \frac{1,000}{3,500} = \frac{10}{35} = \frac{2}{7}$$

Ricardo loses $\frac{2}{7}$ pound.

Step 2
Calories Used in One Hour

Activity	Calories
Tennis	500
Bicycling	500
Golf	350
Swimming	500
Walking	300
Running	700
Heavy exercise	1,200

Directions Use the chart to compute how much weight each person loses. Simplify your answers.

Daily Exercise

- Abdul plays golf for 4 hours.
- Maria swims for 3 hours.
- Millard plays tennis for 6 hours.
- Racquel walks for 6 hours.
- Rudy bikes for 3 hours.
- Nikki runs for 2 hours.

Weight Loss

Directions Change each answer to a mixed number in lowest terms.

Monthly Exercise

- Brandon runs for 11 hours.
- Suki plays tennis for 31 hours.
- Robert walks for 77 hours.
- LaToya does 21 hours of heavy exercise.
- Christen bikes for 18 hours.
- Shiro swims for 42 hours.

Weight Loss



Multiplication of Fractions

EXAMPLE

$$\frac{2}{5} \times \frac{10}{13} = \frac{20}{65} = \frac{4}{13}$$

$\frac{\text{numerator times numerator}}{\text{denominator times denominator}}$

OR $\frac{2}{\cancel{5}^1} \times \frac{10^2}{13} = \frac{4}{13}$

Because $\frac{10}{5} = \frac{2}{1}$

EXAMPLE

$$2\frac{1}{2} \times 2\frac{2}{3} =$$

$$\frac{5}{\cancel{2}^1} \times \frac{8^4}{3} = \frac{20}{3} = 6\frac{2}{3}$$

Because $\frac{8}{2} = \frac{4}{1}$

Directions Multiply. Simplify your answers.

1. $\frac{5}{6} \times \frac{2}{3} =$

8. $\frac{9}{10} \times \frac{5}{18} =$

15. $2\frac{3}{5} \times 1\frac{2}{7} =$

22. $\frac{2}{3} \times \frac{5}{1} =$

2. $\frac{4}{5} \times \frac{3}{4} =$

9. $2\frac{1}{2} \times \frac{4}{5} =$

16. $3\frac{2}{5} \times \frac{15}{17} =$

23. $3\frac{1}{2} \times \frac{6}{1} =$

3. $\frac{7}{8} \times \frac{5}{14} =$

10. $3\frac{2}{3} \times \frac{3}{5} =$

17. $4\frac{3}{4} \times \frac{4}{5} =$

24. $4\frac{3}{5} \times 5 =$

4. $\frac{3}{8} \times \frac{10}{12} =$

11. $\frac{2}{7} \times 3\frac{1}{4} =$

18. $2\frac{3}{7} \times \frac{2}{17} =$

25. $7\frac{1}{2} \times 3\frac{1}{2} =$

5. $\frac{7}{13} \times \frac{2}{7} =$

12. $\frac{4}{8} \times 1\frac{1}{9} =$

19. $5\frac{2}{7} \times \frac{1}{7} =$

26. $4\frac{2}{5} \times 1\frac{2}{3} =$

6. $\frac{3}{11} \times \frac{22}{24} =$

13. $1\frac{1}{5} \times 2\frac{2}{3} =$

20. $10\frac{2}{3} \times \frac{15}{16} =$

27. $4\frac{1}{5} \times \frac{1}{2} =$

7. $\frac{6}{13} \times \frac{5}{12} =$

14. $1\frac{1}{6} \times 2\frac{1}{3} =$

21. $3\frac{1}{7} \times 1\frac{7}{11} =$

28. $30\frac{1}{2} \times \frac{2}{3} =$



Meal Preparation Time

EXAMPLE

Elijah wants to make a turkey. He plans 35 minutes to prepare the stuffing and to stuff the bird. It must cook 25 minutes per pound and it weighs 13 lb 14 oz. After it roasts, the turkey must stand 25 minutes before carving. Carving should take about 15 minutes. How much time should Elijah allow to prepare the turkey?

Step 1 Find the weight of the bird in lb
Convert oz to lb

$$\begin{aligned} 14 \text{ oz} &= \frac{14}{16} \text{ lb} \\ &= \frac{7}{8} \text{ lb} \\ &= .875 \text{ lb} \end{aligned}$$

Add .875 lb to 13 lb

The turkey weighs 13.875 lb

Step 3 Find the total minutes required.
35 minutes for stuffing
5 hours 47 minutes roasting
25 minutes standing
+ 15 minutes carving
5 hours 122 minutes

Rename 122 minutes to 2 hours 2 minutes

5 hours + 2 hours 2 minutes = 7 hours 2 minutes.

Step 2 Find the roasting time required.
Multiply the weight by cooking time per pound.

$$\begin{array}{r} 13.875 \text{ weight} \\ \times 25 \text{ minutes per pound} \\ \hline 346.875 \approx 347 \text{ minutes} \end{array}$$

Divide by 60 minutes per hour
5 hours

$$\begin{array}{r} 60 \overline{) 347} \\ \underline{300} \\ 47 \text{ minutes left over} \end{array}$$

Elijah should allow about 7 hours to prepare the turkey.

Directions Find the cooking times below.

	Weight of Roast	Roasting Time	Preparation and Standing Time	Total Time Required
1.	4 lb	25 minutes per lb	35 minutes	
2.	4 lb 8 oz	15 minutes per lb	1 hour 10 minutes	
3.	3 lb 5 oz	20 minutes per lb	25 minutes	
4.	2.41 lb	18 minutes per lb	15 minutes	
5.	1.43 lb	25 minutes per lb	28 minutes	
6.	12 lb 9 oz	15 minutes per lb	1 hour 45 minutes	
7.	6 lb 4 oz	35 minutes per lb	35 minutes	
8.	3.78 lb	20 minutes per lb	45 minute	



Solving for the Base

EXAMPLE

rate	base	percentage
↓	↓	↓
24% of what number is 12.96?		
$0.24 \times N = 12.96$		
$N = 12.96 \div 0.24$		
$N = 54$		

- Step 1** Write the rate as a decimal.
Step 2 Divide the percentage by the rate.
Step 3 Round the quotient if required.

EXAMPLE

2.7% of what number is 102?
 (Round to the nearest whole number.)

$$0.027 \times N = 102$$

$$N = 102 \div 0.027$$

$$N = 3,778$$

$$\begin{array}{r} 3777.7 \\ 0.027 \overline{) 102.0000} \end{array}$$

Directions Solve for the base. Rounding is not needed.

- | | |
|---|--|
| <p>1. 12% of what number is 18? _____</p> <p>2. 6% of what number is 7.2? _____</p> <p>3. 10% of what number is 17.5? _____</p> <p>4. 2.8% of what number is 2.8? _____</p> <p>5. 8.3% of what number is 0.747? _____</p> | <p>6. 7% of what number is 1.4? _____</p> <p>7. 4% of what number is 3.68? _____</p> <p>8. 88% of what number is 95.04? _____</p> <p>9. 6.2% of what number is 0.434? _____</p> <p>10. 1.4% of what number is 1.022? _____</p> |
|---|--|

Directions Solve for the base. Round the base to the nearest whole number.

- | | |
|--|---|
| <p>1. 7% of what number is 67? _____</p> <p>2. 39% of what number is 20? _____</p> <p>3. 9.6% of what number is 80? _____</p> <p>4. 48% of what number is 53.2? _____</p> <p>5. 2% of what number is 60? _____</p> | <p>6. 86% of what number is 9? _____</p> <p>7. 0.69% of what number is 2? _____</p> <p>8. 7% of what number is 28? _____</p> <p>9. 5% of what number is 5? _____</p> <p>10. 4.2% of what number is 0.6? _____</p> |
|--|---|



Refunds for Repossessions

EXAMPLE

Rebecca made total payments of \$832 on a TV before it was repossessed. The resale price was \$419. The original price was \$1,200. The repossession and resale costs were \$13 and \$10. What was Rebecca's refund?

<i>Total Payment</i>	<i>Resale Price</i>	<i>Original Price</i>	<i>Repossession and Resale Costs</i>
\$832	\$419	\$1,200	\$13, \$10
Step 1	Step 2	Step 3	
\$832	\$1,200	\$1,251	
+ 419	13	- 1,223	
\$1,251	+ 10	\$ 28	Refund
	\$1,223		

Rebecca's refund was \$28.00.

Directions Compute the refund for each of the following examples.

	Total Payment	Resale Price	Original Price	Repossession and Resale Costs	Refund
1.	\$1,086	\$619	\$2,112	\$11, \$6	_____
2.	\$1,507	\$718	\$1,772	\$22, \$9	_____
3.	\$712	\$256	\$815	\$18, \$5	_____
4.	\$814	\$320	\$945	\$18, \$9	_____
5.	\$1,281	\$418	\$1,644	\$13, \$13	_____
6.	\$763	\$251	\$965	\$26, \$7	_____
7.	\$1,183	\$542	\$1,794	\$17, \$13	_____
8.	\$466	\$763	\$943	\$27, \$5	_____
9.	\$532	\$203	\$982	\$10, \$7	_____
10.	\$948	\$544	\$1,850	\$15, \$11	_____
11.	\$464	\$246	\$757	\$20, \$12	_____
12.	\$1,803	\$501	\$2,298	\$17, \$12	_____

Total Payments for Purchases

EXAMPLE

Larry financed \$3,400 worth of furniture at 18% interest for 30 months. Find Larry's total payment.

Amount	Rate	Months
\$3,400	18%	30

Step 1 Look in the table. The payment at 18% for 30 months is \$4.17.

Step 2 Divide to find how many \$100s are in \$3,400.
 $\$3,400 \div \$100 = 34$

Step 3	\$4.17	Payment for \$100
×	34	\$100s in \$3,400
	\$ 141.78	Payment for \$3,400
	\$ 141.78	Monthly payment
×	30	Months
	\$4,253.40	Total payment

Larry's total payment is \$4,253.40.

Monthly Payments for Each \$100 Financed

Rate	12 Mo.	18 Mo.	24 Mo.	30 Mo.	36 Mo.	42 Mo.
4%	\$8.52	\$5.74	\$4.35	\$3.51	\$2.96	\$2.56
5%	\$8.57	\$5.78	\$4.39	\$3.56	\$3.00	\$2.61
6%	\$8.61	\$5.83	\$4.44	\$3.60	\$3.05	\$2.65
7%	\$8.66	\$5.87	\$4.48	\$3.65	\$3.09	\$2.70
8%	\$8.70	\$5.92	\$4.53	\$3.69	\$3.14	\$2.74
9%	\$8.75	\$5.96	\$4.57	\$3.74	\$3.18	\$2.79
10%	\$8.80	\$6.01	\$4.62	\$3.79	\$3.23	\$2.84
11%	\$8.84	\$6.06	\$4.67	\$3.83	\$3.28	\$2.88
12%	\$8.89	\$6.10	\$4.71	\$3.88	\$3.33	\$2.93
13%	\$8.94	\$6.15	\$4.76	\$3.93	\$3.37	\$2.98
14%	\$8.98	\$6.20	\$4.81	\$3.97	\$3.42	\$3.03
15%	\$9.03	\$6.24	\$4.85	\$4.02	\$3.47	\$3.08
16%	\$9.08	\$6.29	\$4.90	\$4.07	\$3.52	\$3.13
17%	\$9.13	\$6.34	\$4.95	\$4.12	\$3.57	\$3.18
18%	\$9.17	\$6.39	\$5.00	\$4.17	\$3.62	\$3.23
19%	\$9.22	\$6.43	\$5.05	\$4.22	\$3.67	\$3.28
20%	\$9.27	\$6.48	\$5.09	\$4.27	\$3.72	\$3.33
21%	\$9.32	\$6.53	\$5.14	\$4.32	\$3.77	\$3.39
22%	\$9.36	\$6.58	\$5.19	\$4.37	\$3.82	\$3.44
23%	\$9.41	\$6.63	\$5.24	\$4.42	\$3.88	\$3.49
24%	\$9.46	\$6.68	\$5.29	\$4.47	\$3.93	\$3.55
25%	\$9.51	\$6.72	\$5.34	\$4.52	\$3.98	\$3.60

Directions Find the total payment for each of the purchases below. Follow the example and use the amortization table.

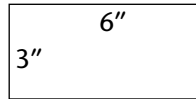
Amount	Rate	Months	Total Payment	Amount	Rate	Months	Total Payment
1. \$3,600	23%	36	_____	11. \$1,500	8%	36	_____
2. \$3,300	24%	30	_____	12. \$1,300	18%	12	_____
3. \$8,400	21%	42	_____	13. \$1,700	18%	18	_____
4. \$6,300	22%	24	_____	14. \$4,900	25%	24	_____
5. \$3,000	16%	24	_____	15. \$1,900	9%	12	_____
6. \$1,300	9%	42	_____	16. \$7,400	19%	30	_____
7. \$5,600	25%	36	_____	17. \$8,300	11%	42	_____
8. \$9,300	21%	18	_____	18. \$1,200	8%	42	_____
9. \$5,500	23%	18	_____	19. \$5,600	7%	30	_____
10. \$4,400	5%	42	_____	20. \$1,300	15%	42	_____



The Key to Area

EXAMPLE
Rectangle

Rule To find the area of a rectangle, multiply the length and width.



$$A = l \times w = 6'' \times 3'' = 18 \text{ square inches}$$

Square

Rule To find the area of a square, square the side.



$$A = s^2 = 3^2 = 3'' \times 3'' = 9 \text{ square inches}$$

Directions Draw the figures in the area provided or on grid paper.
Then find the areas of the figures.

	Dimensions	Draw Figures	Area of Figures
1.	$l = 5''$ $w = 4''$		
2.	$l = 6''$ $w = 1''$		
3.	$l = 3'$ $w = 2'$		
4.	$l = 29''$ $w = 12''$		
5.	$l = 53'$ $w = 41'$		
6.	$s = 2''$		
7.	$s = 7''$		
8.	$s = 11''$		
9.	$s = 9''$		
10.	$s = 38'$		
11.	$l = 3''$ $w = 5''$		
12.	$l = 1''$ $w = 4''$		
13.	$l = 7'$ $w = 3'$		
14.	$l = 27''$ $w = 11''$		
15.	$l = 36'$ $w = 40'$		
16.	$s = 6''$		



Review of Basic Operations with Whole Numbers

1. $25 + 341 =$ _____
2. $304 \times 23 =$ _____
3. $1,002 - 384 =$ _____
4. $26,261 \div 25 =$ _____
5. $3,020 \times 105 =$ _____
6. $80,345 - 2,934 =$ _____
7. $7,022 \div 68 =$ _____
8. $8,054 \times 112 =$ _____
9. $55,067 + 399 + 944 =$ _____
10. $49,322 \div 33 =$ _____
11. $49,338 - 9,442 =$ _____
12. $38 + 12 - 19 =$ _____
13. $9,122 \div 8 =$ _____
14. $30,091 - 28,949 =$ _____
15. $7,456 - 234 + 283 =$ _____
16. $801 \times 20 \div 10 =$ _____
17. $288 + 942 + 9,511 =$ _____
18. $40,013 - 23,471 =$ _____
19. $674 + 85 - 495 =$ _____
20. $98,003 - 83,741 =$ _____
21. $40,591 \div 3 =$ _____
22. $5,900 \times 400 =$ _____
23. $10,384 \times 200 =$ _____
24. $40,513 \div 39 =$ _____
25. $8,371 - 578 =$ _____
26. $56,571 \div 65 =$ _____
27. $4 + 23 + 405 + 933 =$ _____
28. $37 \times 14 \times 35 =$ _____
29. $9,832 + 293 + 39,441 =$ _____
30. $5,761 + 384 - 481 =$ _____
31. $304 + 35 - 27 + 83 =$ _____
32. $144,144 \div 36 =$ _____
33. $80,028 - 29,388 =$ _____
34. $60,021 \times 847 =$ _____
35. $102,283 - 23,384 =$ _____
36. $302 \times 21 \div 9 =$ _____
37. $11,028 - 983 =$ _____
38. $42 + 6 + 81 + 923 =$ _____
39. $90,000 \div 100 =$ _____
40. $499 + 76 + 22 - 274 =$ _____
41. $30,022 \div 29 =$ _____
42. $5,058 \times 501 =$ _____
43. $58,007 \div 12 =$ _____
44. $40,596 + 293 + 948 =$ _____
45. $40,591 - 2,935 + 47,501 =$ _____
46. $846,102 \div 14 =$ _____
47. $875 + 4,059 + 2,374 =$ _____
48. $60,900 \div 5,002 =$ _____



Buying Paint

EXAMPLE

April is at the hardware store and must decide whether to buy paint in 11 individual quart cans or to buy it in both gallon and quart cans. Here are the facts:

4 quarts = 1 gallon
 1 quart costs \$4.39
 1 gallon costs \$13.99

What should April do?

Step 1 Find the cost of 4 quarts.

$$\begin{array}{r} \$4.39 \\ \times 11 \\ \hline \$48.29 \end{array}$$

Step 2 Find out how many gallons to buy.

$$\begin{array}{r} 2 \text{ Gallons} \\ 4 \overline{)11} \\ \underline{-8} \\ 3 \text{ Quarts} \end{array}$$

Two gallons and 3 quarts are equal to 11 quarts.

Step 3 Find the cost.

$$\begin{array}{r} \$13.99 \text{ Cost per gallon} \\ \times 2 \\ \hline \$27.98 \text{ Cost of 2 gallons} \\ \\ \$4.39 \text{ Cost per quart} \\ \times 3 \\ \hline \$13.17 \text{ Cost of 3 quarts} \\ \\ \$27.98 \text{ Cost of 2 gallons} \\ + 13.17 \text{ Cost of 3 quarts} \\ \hline \$41.15 \text{ Total cost} \end{array}$$

April should buy 2 gallons and 3 quarts.

Directions Complete this chart.

Remember: 1 gallon costs \$13.99 and 1 quart costs \$4.39.

	Quarts Required	Amount to Buy		Cost		Total
		Gallons	Quarts	Gallons	Quarts	
1.	9					
2.	20					
3.	26					
4.	17					
5.	7					
6.	50					
7.	33					
8.	47					
9.	38					
10.	3					



Buying Wallpaper

EXAMPLE

Peter plans to paper his bedroom, which measures 10' x 12' by 10'. How much wallpaper should he buy? Each double roll of wallpaper covers 144 square feet.

Step 1 Find the perimeter of a floor 10' x 12'.

$$\begin{aligned} P &= 2(10' + 12') \\ &= 2(22') \\ &= 44' \end{aligned}$$

Step 2 Find the area of the 4 walls.

Multiply the perimeter by the height.

44'	Perimeter
× 10'	Height
440 sq ft	Area of 4 walls

Step 3 Divide the area by 144 square feet to find the number of rolls needed.

3	rolls of wallpaper
144) 440	Area of room
- 432	
8	Square feet remaining

Because of the remainder, Peter needs to buy 4 rolls.

Directions Calculate the number of double rolls of wallpaper needed to paper each of these rooms. The third measurement for each room is the height.

	Room Dimensions	Number of Double Rolls of Wallpaper Required
1.	17' × 9' × 8'	
2.	11' × 13' × 8'	
3.	16' × 12' × 8'	
4.	6.5' × 9' × 8'	
5.	12.4' × 14.6' × 10'	
6.	7.7' × 10.6' × 10'	
7.	26' × 15.2' × 8'	
8.	35' × 10.5' × 10'	



Covering the Floor

EXAMPLE

Soo Lee decides to buy square tiles to cover her kitchen floor. Each square measures $12'' \times 12''$ and costs \$1.49. How much will it cost to cover her $9' \times 8'$ floor?

Step 1 Find the area that each tile covers.

$$\begin{aligned} 12 \text{ inches} &= 1 \text{ foot} \\ 1' \times 1' &= 1 \text{ square} \\ &\text{foot} \end{aligned}$$

Step 2 Find the number of square feet of floor that needs to be covered.

$$\begin{aligned} \text{Area} &= l \times w \\ &= 9' \times 8' \\ &= 72 \text{ square feet} \end{aligned}$$

Since each tile covers 1 square foot, Soo Lee needs 72 tiles.

Step 3 Multiply the number of tiles by the cost per tile.

$$\begin{array}{r} \$1.49 \text{ Cost per tile} \\ \times 72 \text{ Number of tiles} \\ \hline \$107.28 \text{ Total cost} \end{array}$$

Soo Lee will pay \$107.28 to cover her floor.

Directions Find the cost of covering these floors with $12'' \times 12''$ tiles.

	Cost per Tile	Floor Dimensions (in feet)			Cost of Flooring
1.	\$0.79	10	\times	7	
2.	\$1.59	9	\times	12	
3.	\$2.89	10	\times	17	
4.	\$1.95	10	\times	14	
5.	\$1.69	13	\times	19	
6.	\$0.75	10	\times	18	
7.	\$2.99	14	\times	17	
8.	\$4.59	12	\times	16	
9.	\$3.19	8	\times	16	
10.	\$1.19	11	\times	13	
11.	\$5.29	7	\times	15	
12.	\$3.09	17	\times	9	
13.	\$0.89	15	\times	8	
14.	\$1.49	13	\times	12	
15.	\$2.49	10	\times	11	
16.	\$4.99	7	\times	10	



Computing Length of Molding

EXAMPLE

Mary Lou wants to finish her kitchen by installing molding around the room. How much quarter-round molding should she buy for the $12' \times 7'$ room?

Find the perimeter of the room.

$$\begin{aligned} P &= 2(l' + w') \\ &= 2(12' + 7') \\ &= 2(19') \\ &= 38' \end{aligned}$$

Mary Lou needs 38 feet of molding.



Directions Calculate the amount of molding needed for each of these rooms.

	Dimensions of Room	Diagram of Room	Molding Needed
1.	$11' \times 7'$		
2.	$17' \times 7'$		
3.	$10' \times 14'$		
4.	$9' \times 15'$		
5.	$12' \times 20'$		
6.	$8' \times 12'$		
7.	$13' \times 16'$		
8.	$17' \times 17'$		
9.	$8' \times 11'$		
10.	$13' \times 13'$		



Wall-to-Wall Carpeting

EXAMPLE

Yoku wants wall-to-wall carpeting in his room, which measures 8' x 11'. Carpeting is on sale for \$11.99 per square yard. Estimate the cost. Round answers where possible.

Step 1 Find the area of the floor in square feet.

$$\begin{aligned} \text{Area} &= l \times w \\ &= 11' \times 8' \\ &= 88 \text{ square feet} \end{aligned}$$

Step 2 Find the area in square yards. One square yard = 9 square feet. Divide by 9 to find the number of square yards. Round 9 sq yd and 7 sq ft to 10 sq yd

$$\begin{array}{r} 9 \text{ sq yd} = 10 \text{ sq yd} \\ 9 \overline{)88} \\ - 81 \\ \hline 7 \text{ sq ft} \end{array}$$

Step 3 Round the cost per square yard to the next whole number. Multiply the number of square yards by the cost per square yard.

$$\begin{aligned} \$11.99 &= \$12.00 \\ 10 \times \$12.00 &= \$120.00 \end{aligned}$$

Yoku's estimated cost is \$120.00.

Directions Estimate the cost of carpeting these floors.

	Floor Dimensions			Cost per Square Yard	Estimated Cost
1.	8'	×	10'	\$13.99	
2.	24'	×	17'	\$9.97	
3.	14'	×	15'	\$11.95	
4.	11'3"	×	15'8"	\$12.98	
5.	14'7"	×	17'5"	\$14.99	
6.	18'	×	15'	\$6.90	
7.	9'4"	×	16'10"	\$8.95	
8.	8'6"	×	11'	\$18.99	
9.	11'5"	×	15'9"	\$10.99	
10.	12'9"	×	14'10"	\$16.97	
11.	15'6"	×	16'	\$10.89	
12.	10'	×	18'	\$14.95	
13.	17'	×	9'6"	\$9.90	



Find the Selling Price

EXAMPLE

When stores set a selling price for an item, managers must consider how much they have to pay for it (cost), how much it costs to pay employees, store rent, and other expenses (overhead), and how much profit they want.

<i>Cost</i>	<i>Overhead</i>	<i>Profit</i>
\$25.04	18%	10%

Step 1 Add the percentages for overhead and for profit.

18%	Overhead
+ 10%	Profit
<u>28%</u>	Markup percent

Step 2 Multiply the cost by the percentage.

$$\begin{array}{r} \$ 25.04 \\ \times .28 \\ \hline \$7.0112 \end{array} = 7.02 \text{ Markup}$$

Step 3 Add the cost and the markup.

\$25.04	Cost
+ 7.02	Markup
<u>\$32.06</u>	Selling price

Directions Compute the selling price for each of these materials.
Round fractions of a cent to the next higher cent.

	Cost	Overhead	Profit	Selling Price
1.	\$5.87	31%	19%	_____
2.	\$4.80	10%	12%	_____
3.	\$17.81	8%	12%	_____
4.	\$11.83	36%	10%	_____
5.	\$6.88	19%	19%	_____
6.	\$17.69	27%	18%	_____
7.	\$18.11	20%	26%	_____
8.	\$16.65	12%	33%	_____
9.	\$4.24	23%	14%	_____
10.	\$220.00	16.6%	16%	_____
11.	\$2.63	8%	35%	_____
12.	\$3.55	34%	19%	_____
13.	\$13.12	22%	22%	_____
14.	\$15.90	27%	16%	_____
15.	\$9.79	10%	14%	_____



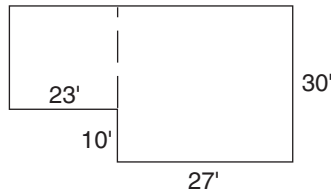
Insulation

EXAMPLE
Prices for Rolls of Insulation

BRAND	Brand A	Brand B	Brand C	Brand D
Size of Rolls	99 sq. ft.	110 sq. ft.	59 sq. ft.	48 sq. ft.
Cost of Rolls	\$19 ⁹⁵	\$26 ⁷⁹	\$15 ⁹⁵	\$16 ⁷⁹

Petera plans to put Brand A insulation in her attic. How much will it cost? The dimensions are as shown.

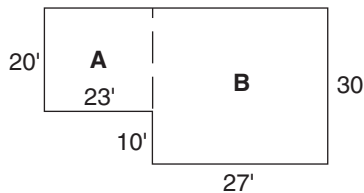
Step 1 Divide the irregular figure into rectangles



Step 4 Add these areas to find the total area.

$$\begin{array}{r} 460 \text{ sq ft} \\ + 810 \text{ sq ft} \\ \hline 1,270 \text{ sq ft} \end{array}$$

Step 2 Find the missing dimensions.



Step 5 Divide the total area by the number of square feet per roll of insulation.

$$\begin{array}{r} 12.8 \rightarrow 13 \text{ rolls} \\ 99 \overline{) 1,270} \end{array} \quad \text{Round up for any remainder.}$$

Step 3 Find the areas.

$$\begin{array}{ll} \text{Area A} = l \times w & \text{Area B} = l \times w \\ = 23' \times 20' & = 30' \times 27' \\ = 460 \text{ sq ft} & = 810 \text{ sq ft} \end{array}$$

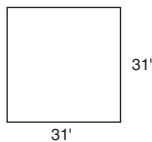
Step 6 Multiply the cost per roll times the number of rolls of insulation needed.

$$\begin{array}{r} \$19.95 \text{ Cost per roll} \\ \times 13 \text{ Number of rolls} \\ \hline \$259.35 \text{ Total cost to insulate attic} \end{array}$$

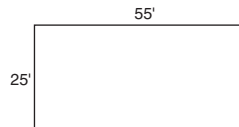
It will cost Petera \$253.25 to insulate her attic.

Directions Find the cost of insulating each of these attics. Round your answers to the nearest cent.

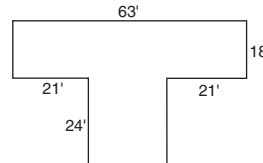
1. Brand A



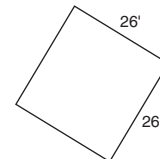
2. Brand C



3. Brand A



4. Brand B



Seeding Lawns

EXAMPLE Amalie wants to reseed her lawn. She selects variety E, Generic Seed. The total area of her property is 600 m^2 . Her house and driveway cover 150 m^2 . What does the seed cost?

Step 1 Find the area to be seeded. Subtract the area of the house and driveway from the total area.

$$\begin{array}{r} 600 \text{ m}^2 \\ - 150 \text{ m}^2 \\ \hline 450 \text{ m}^2 \text{ Area to be seeded.} \end{array}$$

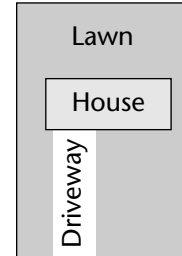
Step 2 Find the number of bags of seed needed. Divide the area to be seeded by the coverage per bag. Round your answer to the next bag.

$$\begin{array}{r} 1.125 \approx 2 \\ 400 \overline{) 450.00} \end{array}$$

Step 3 Multiply the cost per bag by the number of bags needed.

$$\begin{array}{r} \$5.69 \text{ Cost per bag} \\ \times \quad 2 \text{ Number of bags} \\ \hline \$11.38 \text{ Total Cost} \end{array}$$

The cost of seed for Amalie's lawn is \$11.38.



Directions Find the cost of seed for each of these lots.

Area of Lot	Area of House and Driveway	Variety of Seed
1. $1,000 \text{ m}^2$	100 m^2	A
2. 975 m^2	75 m^2	B
3. 827 m^2	129 m^2	C
4. $2,010 \text{ m}^2$	68 m^2	D
5. $1,575 \text{ m}^2$	103 m^2	E
6. $1,500 \text{ m}^2$	500 m^2	B
7. 870 m^2	70 m^2	D
8. $1,250 \text{ m}^2$	200 m^2	A
9. $2,100 \text{ m}^2$	90 m^2	E
10. $1,025 \text{ m}^2$	95 m^2	D

Coverage Rates		
Variety	Coverage per Bag	Cost per Bag
A. Shady Seed	275 m^2	\$11.79
B. Show Seed	200 m^2	\$7.59
C. Hardy Seed	450 m^2	\$9.99
D. Kentucky Bluegrass Seed	400 m^2	\$10.49
E. Generic Seed	400 m^2	\$5.69

Fencing an Irregular Area

EXAMPLE

Janet and Ken want to fence in their back yard. Find the length of fencing needed for their back yard.

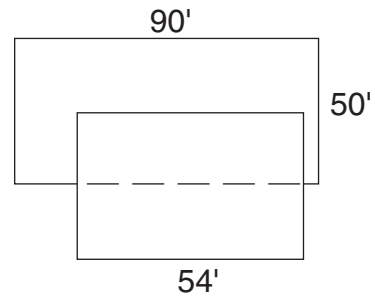
Step 1 Find the perimeter of the yard.

$$\begin{aligned} P &= 2(l + w) \\ &= 2(90 \text{ ft} + 50 \text{ ft}) \\ &= 2(140 \text{ ft}) \\ &= 280 \text{ feet} \end{aligned}$$

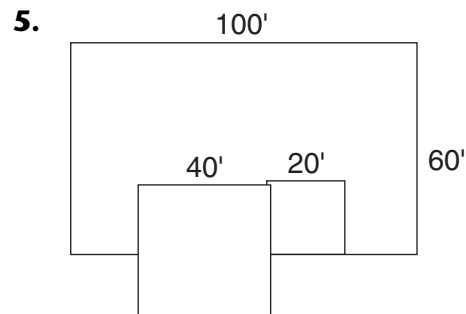
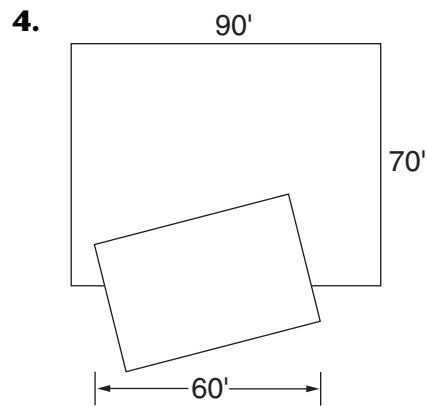
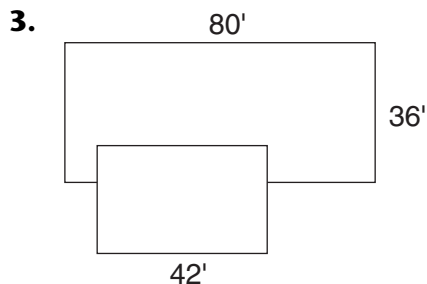
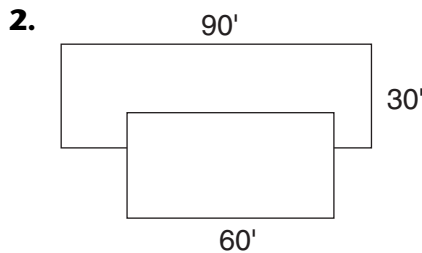
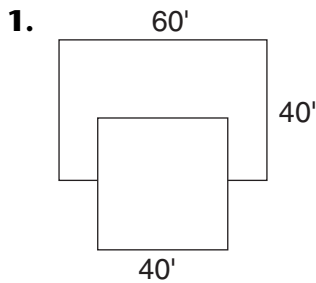
Step 2 Subtract the width of the house.

$$\begin{array}{r} 280 \text{ ft} \text{ Perimeter of yard} \\ - 54 \text{ ft} \text{ Width of house} \\ \hline 226 \text{ ft} \text{ Amount of fencing needed} \end{array}$$

Janet and Ken need 226 feet of fencing.



Directions Find the length of fencing needed for each of these yards.



Using Map Scales

EXAMPLE

Mercedes is planning a road trip from Baltimore to Chicago. On the map the two cities are $4\frac{1}{16}$ inches apart. The map is drawn to scale so that $\frac{11}{16}$ inch equals 100 miles. Estimate the distance between these two cities.

Step 1 Write the map scale proportion.

$$\frac{\frac{11''}{16}}{100} = \frac{4\frac{1}{16}''}{\text{Baltimore to Chicago}}$$

Step 2 Solve the proportion.

$$\begin{aligned} \frac{\frac{11''}{16}}{100} &= \frac{4\frac{1}{16}''}{\text{Baltimore to Chicago}} \\ 100 \times 4\frac{1}{16} \div \frac{11}{16} &= \\ 100 \times \frac{65}{16} \div \frac{11}{16} &= \\ 100 \times \frac{65}{16} \times \frac{16}{11} &= \\ 100 \times 65 \div 11 &= 591 \text{ miles} \end{aligned}$$

Mercedes estimates that her trip will be about 591 miles.

Directions Find the estimated distance between the following cities using the map scale of $\frac{11}{16}$ inch = 100 miles.

	Departure City	Destination City	Distance On Map	Estimated Distance
1.	Portland, ME	Portland, OR	$16\frac{5}{8}''$	
2.	Columbia, MI	Columbia, SC	$2\frac{15}{16}''$	
3.	Springfield, MO	Springfield, MA	$7\frac{11}{16}''$	
4.	Springfield, MA	Springfield, IL	6''	
5.	Springfield, IL	Springfield, MO	$1\frac{13}{16}''$	
6.	Springfield, MA	Springfield, OH	$4\frac{1}{8}''$	
7.	Augusta, GA	Augusta, ME	$6\frac{11}{16}''$	
8.	Marietta, OH	Marietta, GA	$2\frac{13}{16}''$	



Reading a Mileage Chart

EXAMPLE
Mileage Chart

	Albany, NY	Albuquerque, NM	Atlanta, GA	Birmingham, AL	Calgary, AB
Albany, NY		2,050	1,000	1,070	2,450
Albuquerque, NM	2,050		1,400	1,250	1,500
Atlanta, GA	1,000	1,400		150	2,370
Birmingham, AL	1,070	1,250	150		2,300
Calgary, Alberta	2,450	1,500	2,370	2,300	

Gianni plans a road trip from Atlanta, GA, to Albany, NY, to Birmingham, AL, and back to Atlanta. Find the total distance Gianni will drive.

Step 1: Find the individual trips distances on the Mileage Chart.

Atlanta to Albany	1,000
Albany to Birmingham	1,070
Birmingham to Atlanta	150

Step 2: Add the distances to find the total for the trip.

1,000
1,070
+ 150
<hr/> 2,220 miles

Gianni will drive 2,220 miles on this round trip.

How many kilometers will Gianni travel?

To change miles to kilometers, multiply by 1.6093.

$$2,220 \times 1.6093 = 3,573$$

Gianni will travel 3,573 kilometers on this round trip.

Directions Find the total number of miles and kilometers traveled on each trip.

	City of Origin	Stop-Over City	Destination	Total Miles	Total Kilometers
1.	Albany, NY	Atlanta, GA	Albany, NY		
2.	Albuquerque, NM	Birmingham, AL	Atlanta, GA		
3.	Atlanta, GA	Birmingham, AL	Calgary, AB		
4.	Birmingham, AL	Albany, NY	Calgary, AB		



Elapsed Time

EXAMPLE Find the elapsed time from 7:35 A.M. to 1:15 P.M.

Step 1 Rename 1:15 P.M. to 24 hour clock by adding 12 hours.

$$1:15 \text{ P.M.} = 13 \text{ hours } 15 \text{ minutes}$$

Step 2 Subtract earlier time from later time. Rename 1 hour = 60 minutes, if necessary.

$$\begin{array}{r} 13 \text{ hours } 15 \text{ minutes} = 12 \text{ hours } 75 \text{ minutes} \\ - 7 \text{ hours } 35 \text{ minutes} = - 7 \text{ hours } 35 \text{ minutes} \\ \hline 5 \text{ hours } 40 \text{ minutes} \end{array}$$

The elapsed time from 7:35 A.M. to 1:15 P.M. is 5 hours and 40 minutes.

Directions Solve the following problems. Rename afternoon hours to 24 hour clock, if necessary. Rename one hour to 60 minutes when necessary.

1.
$$\begin{array}{r} 1:05 \text{ P.M.} \\ - 4:40 \text{ A.M.} \\ \hline \end{array}$$

2.
$$\begin{array}{r} 2:10 \text{ P.M.} \\ - 9:15 \text{ A.M.} \\ \hline \end{array}$$

3.
$$\begin{array}{r} 10:04 \text{ P.M.} \\ - 2:18 \text{ A.M.} \\ \hline \end{array}$$

4.
$$\begin{array}{r} 1:15 \text{ P.M.} \\ - 8:45 \text{ A.M.} \\ \hline \end{array}$$

5.
$$\begin{array}{r} 1:35 \text{ P.M.} \\ - 9:50 \text{ A.M.} \\ \hline \end{array}$$

6.
$$\begin{array}{r} 8:55 \text{ P.M.} \\ - 1:51 \text{ P.M.} \\ \hline \end{array}$$

7.
$$\begin{array}{r} 6:10 \text{ P.M.} \\ - 8:06 \text{ A.M.} \\ \hline \end{array}$$

8.
$$\begin{array}{r} 4:17 \text{ P.M.} \\ - 9:43 \text{ A.M.} \\ \hline \end{array}$$

9. From 10:34 A.M. to 1:19 P.M.

10. From 6:51 A.M. to 2:54 P.M.

11. From 12:22 P.M. to 7:31 P.M.

12. From 8:15 P.M. to 10:19 P.M.



Bus Travel Times

EXAMPLE**Rules:**

1. To find departure time, subtract the duration hours and minutes from the arrival time.
2. To find arrival time, add duration to the departure time.
3. To find the duration time, subtract the departure time from the arrival time.

Find the arrival time if the duration of the trip is 3 hours and 45 minutes and the departure time is 9:15 P.M. Use rule 2.

$$\begin{array}{r} 9:15 \text{ P.M.} \\ + 3:45 \text{ duration} \\ \hline 12:60 \Rightarrow 13:00 \Rightarrow 1:00 \text{ A.M., the next morning} \end{array}$$

Directions This table represents times for a bus trip between New York and Baltimore. Fill in the table below with the correct missing times. On the back of this paper, write what you think might cause the differences in the duration times for this trip.

	Departure Time	Arrival Time	Duration of Trip
1.	02:00 A.M.		3 hours, 40 minutes
2.	05:05 A.M.		4 hours, 55 minutes
3.	06:40 A.M.		4 hours, 5 minutes
4.	11:45 A.M.		4 hours, 10 minutes
5.	01:20 P.M.		3 hours, 45 minutes
6.	04:00 P.M.		3 hours, 59 minutes
7.	01:30 P.M.	05:30 P.M.	
8.	03:35 P.M.	07:50 P.M.	
9.	04:00 P.M.	08:20 P.M.	
10.	09:30 P.M.		3 hours, 55 minutes



Hotel Rates

EXAMPLE

Lizette and her husband stay in a hotel with their 3 children. The room rate is \$224 per night. There is a 12% room tax. What is their charge for a 3-night stay?

Step 1 Find the total room charge.

$$\begin{array}{r} \$224 \text{ per night} \\ \times 3 \text{ nights} \\ \hline \$672 \text{ room charge} \end{array}$$

Step 2 Add the tax.

$$100\% \text{ for the room plus } 12\% \text{ for the tax} = 112\%$$

$$\$672 \times 112\% = \$752.64$$

The total cost for Lizette's family to stay in the hotel room for 3 nights is \$752.64

Directions Find the room charge and total cost for these problems.

	Room Rate	Nights	Room Charge	Percent Tax	Total Cost
1.	\$205	2		10%	
2.	\$102	15		25%	
3.	\$305	3		11%	
4.	\$156	1		14%	
5.	\$187	6		12%	
6.	\$192	7		13%	
7.	\$155	3		12%	
8.	\$193	1		15%	
9.	\$372	3		21%	
10.	\$1,547	4		17%	
11.	\$208	2		15%	
12.	\$166	4		12%	
13.	\$109	5		18%	
14.	\$325	3		15%	
15.	\$199	2		12%	
16.	\$904	4		20%	



Division Practice

EXAMPLE

Often division results in a zero in the quotient. Be certain to notice each division and place a zero correctly.

$$\begin{array}{r}
 109 \\
 17 \overline{) 1,853} \\
 \underline{17} \\
 15 \\
 \underline{0} \\
 153 \\
 \underline{153} \\
 0
 \end{array}$$

← Remember to place this 0 in the problem and in the answer.

Directions Divide

1. $6 \overline{) 612}$

2. $10 \overline{) 10,900}$

3. $8 \overline{) 10,432}$

4. $5 \overline{) 5,100}$

5. $6 \overline{) 13,254}$

6. $4 \overline{) 6,420}$

7. $12 \overline{) 7,224}$

8. $15 \overline{) 37,500}$

9. $21 \overline{) 8,484}$

10. $26 \overline{) 7,826}$

11. $43 \overline{) 43,129}$

12. $18 \overline{) 14,040}$

13. $24 \overline{) 5,040}$

14. $61 \overline{) 18,483}$

15. $19 \overline{) 38,133}$



Exchange Currency

EXAMPLE
Table of Currency Exchange Rates

Country	Currency Name	Number of Units That Equal One U.S. Dollar	Country	Currency Name	Number of Units That Equal One U.S. Dollar
Australia	dollar	1.87 dollars	Japan	yen	131.55 yen
Brazil	real	2.32 reals	Mexico	peso	9.19 pesos
Britain	pound	0.69 pounds	South Africa	rand	11.9 rands
Canada	dollars	1.60 dollars	Sweden	krona	10.61 kronor
China	yuan	8.28 yuan	Switzerland	franc	1.68 francs
Denmark	krone	8.43 kroner	Thailand	baht	44.18 baht

William exchanges 75 U.S. dollars for Danish kroner. How many kroner will he receive?

Multiply the exchange rate for one U.S. dollar times the U.S. dollar amount.

$$8.43 \text{ kroner} \times \$75 = 632.25 \text{ kroner} = 632$$

William will receive 632 kroner in exchange for 75 U.S. dollars.

Directions Find the amount of native currency that will be exchanged for \$75 U.S. Use the chart above.

	Country	Number of Units That Equal 75 U.S. Dollars
1.	Australia	
2.	Brazil	
3.	Britain	
4.	Canada	
5.	China	
6.	Denmark	632 kroner

	Country	Number of Units That Equal 75 U.S. Dollars
7.	Japan	
8.	Mexico	
9.	South Africa	
10.	Sweden	
11.	Switzerland	
12.	Thailand	



Computing Rental Charges

EXAMPLE

Sweet Tooth Bakery rented a van for \$30 per day and \$0.32 per mile. Find the rental charge for six days and 602 miles.

\$ 30 Per day	\$ 602 Miles	\$ 180.00 Day charge
× 6 Days	× .32 Per mile	+192.64 Mile charge
\$180 Day charge	12 04	\$ 372.64 Total
	+180 6	
	\$192.64 Mile charge	

Sweet Tooth Bakery's rental charge was \$372.64.

Directions Compute the rental charge for each item below. The answer to Number 1 is \$236.20.

Cost Days	Cost per Day	Cost per Mile	Rental Driven	Charge
1. 4	\$30	\$0.28	415	_____
2. 2	\$29	\$0.27	156	_____
3. 4	\$21	\$0.30	150	_____
4. 6	\$21	\$0.19	719	_____
5. 4	\$26	\$0.14	361	_____
6. 2	\$32	\$0.12	109	_____
7. 6	\$22	\$0.15	339	_____
8. 3	\$34	\$0.19	349	_____
9. 5	\$26	\$0.25	252	_____
10. 21	\$19	\$0.26	146	_____
11. 1	\$30	\$0.18	119	_____
12. 2	\$23	\$0.28	150	_____
13. 6	\$22	\$0.20	778	_____
14. 2	\$21	\$0.19	171	_____
15. 2	\$18	\$0.14	130	_____
16. 1	\$22	\$0.24	78	_____
17. 1	\$15	\$0.26	99	_____
18. 6	\$28	\$0.25	714	_____
19. 1	\$23	\$0.21	133	_____



Parking Expenses

EXAMPLE

The sign at the right lists the rates at the Airport Parking Lot. Neece parks her car on Friday at 10:30 P.M. and leaves the lot on Monday at 6:30 A.M. How much does she pay in parking rates for the time her car was at the Airport Parking Lot?

Step 1 Find the parking time on Friday

$$\begin{array}{r} 12:00 \text{ midnight} \\ - 10:30 \\ \hline 1 \text{ hour } 30 \text{ minutes} \end{array}$$

Step 2 Find the cost for Friday

$$\begin{array}{r} \$2.00 \text{ First hour} \\ 1.50 \text{ Last 30 minutes} \\ \hline \$3.50 \end{array}$$

Step 3 Find the cost for Saturday and Sunday.

$$\begin{array}{r} \$12 \text{ Saturday} \\ 12 \text{ Sunday} \\ \hline \$24 \end{array}$$

Step 4 Find the cost for Monday

$$\begin{array}{r} \$2.00 \text{ First hour} \\ \$1.50 \times 6 \text{ remaining hours} = \$9 \\ \hline \text{Cost for Monday is } \$11 \end{array}$$

Step 5 Total the daily costs

$$\begin{array}{r} \$ 3.50 \text{ Friday} \\ 24.00 \text{ Saturday \& Sunday} \\ 11.00 \text{ Monday} \\ \hline \$38.50 \text{ Total} \end{array}$$

Neece must pay \$38.50 for the Airport Parking Lot parking.

Airport Park Lot Rates

\$2 for the first hour

\$1.50 for each additional hour (or part of an hour)

\$12 maximum per day.

Directions Find the cost for parking at the Airport Parking Lot for the following times.

1. Monday, 6:45 A.M. to Friday, 5:55 P.M. _____

2. Sunday, 10:15 P.M. to Wednesday, 6:00 A.M. _____

3. Wednesday, 5:42 P.M. to Sunday, 9:10 A.M. _____

4. Wednesday 9:30 P.M. to Friday, 1:25 A.M. _____

5. Saturday, 8:30 P.M. to Thursday, 12:05 A.M. _____



What Time Is It?

The map shows the United States divided into four time zones.

Pacific Time
9:00 a.m.

Mountain Time
10:00 a.m.

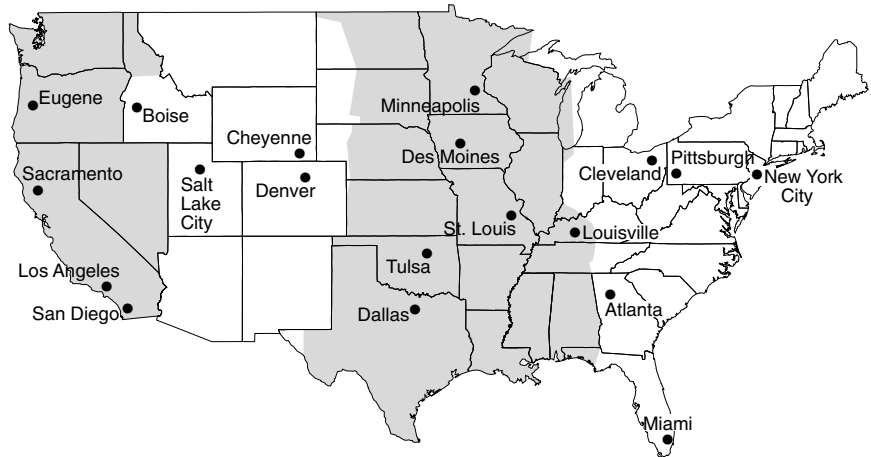
Central Time
11:00 a.m.

Eastern Time
12:00 Noon

EXAMPLE

If it is 10:20 A.M. in Cleveland, what time is it in Tulsa?

Solution: Tulsa is one time zone west of Cleveland. Therefore, the time in Tulsa is one hour earlier: 9:20 A.M.



Directions Use the map to compute the time for each of the following problems.

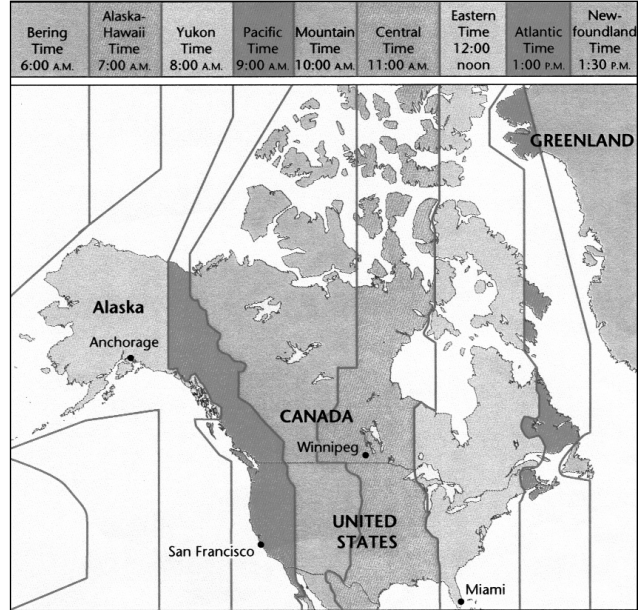
If the time in...	Is...	The time in...	Is?
1. Salt Lake City	3:51 P.M.	San Diego	_____
2. Miami	10:09 P.M.	Salt Lake City	_____
3. Cleveland	5:03 P.M.	Denver	_____
4. Minneapolis	3:38 A.M.	Louisville	_____
5. Cheyenne	9:47 A.M.	Pittsburgh	_____
6. Los Angeles	8:32 P.M.	St. Louis	_____
7. Boise	9:32 A.M.	Eugene	_____
8. Atlanta	4:53 P.M.	Sacramento	_____
9. Cleveland	10:09 P.M.	Miami	_____
10. Dallas	4:24 P.M.	Atlanta	_____
11. Salt Lake City	4:19 A.M.	Minneapolis	_____
12. Boise	8:41 A.M.	San Diego	_____
13. Miami	7:12 P.M.	Tulsa	_____
14. Pittsburgh	6:41 P.M.	Denver	_____
15. Eugene	11:36 P.M.	St. Louis	_____

Time Zones

EXAMPLE

The map shows the nine time zones that North America falls into. If it is 9:15 A.M. in Tulsa, what time is it in Atlanta?

Solution: Atlanta is one time zone east of Tulsa. Therefore, the time in Atlanta is one hour later: 10:15 A.M.



Directions Find the time in the various North American time zones for the given time.

	Bering Time	Alaska-Hawaiian Time	Yukon Time	Pacific Standard Time	Mountain Standard Time	Central Standard Time	Eastern Standard Time
<i>Sample</i>	7:00 P.M.	8:00 P.M.	9:00 P.M.	10:00P.M.	11:00 P.M.	12:00 midnight	1:00 A.M.
1.	1:00 A.M.						
2.	4:35 P.M.						
3.	9:50 P.M.						
4.	11:15 A.M.						
5.	5:44 A.M.						
6.	8:08 P.M.						
7.	12:23 P.M.						
8.	7:25 A.M.						
9.	5:38 A.M.						
10.	2:05 P.M.						

Zeros in the Quotient

EXAMPLE $0.01449 \div 0.23 =$

Write this:

$$\begin{array}{r} .063 \\ .23 \overline{) .01449} \\ \underline{-138} \\ 69 \\ \underline{-69} \\ 0 \end{array}$$

EXAMPLE $2.9484 \div 4.2 =$

Write this:

$$\begin{array}{r} .702 \\ 4.2 \overline{) 2.9484} \\ \underline{-294} \\ 84 \\ \underline{-84} \\ 0 \end{array}$$

Directions Divide.

1. $7.3 \overline{) 29.273}$

6. $.19 \overline{) .00247}$

11. $16 \overline{) .624}$

16. $.44 \overline{) 5.2844}$

2. $5.2 \overline{) .3224}$

7. $.013 \overline{) .06513}$

12. $.65 \overline{) 3.939}$

17. $7.7 \overline{) 7.7077}$

3. $1.5 \overline{) .0345}$

8. $1.1 \overline{) .0308}$

13. $.41 \overline{) 13.1241}$

18. $.83 \overline{) 1.6683}$

4. $.07 \overline{) .1442}$

9. $.31 \overline{) 34.131}$

14. $35 \overline{) .3185}$

19. $.063 \overline{) 5.0463}$

5. $6.3 \overline{) 6.741}$

10. $.022 \overline{) .26422}$

15. $5.7 \overline{) 6.042}$

20. $.006 \overline{) .06618}$

Directions Write these in standard form and divide.

21. $0.57252 \div 0.52 =$ _____

23. $0.00748 \div 0.68 =$ _____

22. $0.06307 \div 0.007 =$ _____

24. $0.26664 \div 1.32 =$ _____



Preparing a Budget

EXAMPLE

Marilee and Evan planned this budget for their average weekly take home pay of \$1,276.50: Housing 30%; Food 18%; Transportation 10%; Gifts 10%; Savings 10%; Clothes 7%; Entertainment 6%; Insurance 5%; Miscellaneous 4%.

How much do they budget for each category?

Multiply the weekly income by each of the budgeted percents.

Housing	$\$1,276.50 \times 30\% = \382.95	Clothes	$\$1,276.50 \times 7\% = \89.36
Food	$\$1,276.50 \times 18\% = \229.77	Entertainment	$\$1,276.50 \times 6\% = \76.59
Transportation	$\$1,276.50 \times 10\% = \127.65	Insurance	$\$1,276.50 \times 5\% = \63.83
Gifts	$\$1,276.50 \times 10\% = \127.65	Miscellaneous	$\$1,276.50 \times 4\% = \51.06
Savings	$\$1,276.50 \times 10\% = \127.65		

Directions Find the amount budgeted for each category. Use the percents shown in the example for each weekly income shown.

Weekly Income	1) \$416.50	2) \$1,246.59	3) \$661.40	4) \$1,413.56
Housing				
Food				
Transportation				
Gifts				
Savings				
Clothing				
Entertainment				
Insurance				
Misc				
Weekly Income	5) \$1,156.89	6) \$874.54	7) \$958.33	8) \$1,857.13
Housing				
Food				
Transportation				
Gifts				
Savings				
Clothing				
Entertainment				
Insurance				
Misc				



Individual Budgets

EXAMPLE

This year, Jolene spent \$2,550.00 on food. Approximately what percent of her \$32,458.00 net income is this?

Step 1 Write the ratio. $\frac{\text{expenses}}{\text{income}} = \frac{\$2,550.00}{\$32,458.00}$

Step 2 Divide. $2,550.00 \div 32,458.00 = 0.78563 \approx 0.08$ or 8%

Answer: Jolene spent \$2,550.00 for food, which was 8% of her income this year.

Step 3 Next year, Jolene will again spend 8% of her income for food, but her salary will increase to \$36,200.00. How much of next year's income will Jolene spend for food?

Step 4 Multiply. $\$36,200 \times 0.08 = \$2,896.00$

Next year, Jolene will spend \$2,896.00 for food, which is 8% of her income.

Directions The budgets for two people are shown below. For each person, first add the expenses for this year to find the net income. Then write the ratio and divide to find out what percent of the yearly income is spent for each category.

Then, using the same percents, multiply to find the amount of next year's income that will be spent in each category. Next year's income is provided, and the total amounts in the *Next Year* column should equal that amount.

1. Patrick Marks

	<i>This Year</i>	<i>Percent</i>	<i>Next Year</i>
Housing	\$4,800	_____	_____
Food	1,900	_____	_____
Clothing	570	_____	_____
Utilities	400	_____	_____
Transportation	3,430	_____	_____
Health	1,520	_____	_____
Education	0	_____	_____
Insurance	600	_____	_____
Savings	200	_____	_____
Charity	50	_____	_____
Recreation	620	_____	_____
Miscellaneous	1,760	_____	_____
Net Income	_____		\$18,000

2. Victor Tobias

	<i>This Year</i>	<i>Percent</i>	<i>Next Year</i>
Housing	\$7,200	_____	_____
Food	3,350	_____	_____
Clothing	1,280	_____	_____
Utilities	580	_____	_____
Transportation	3,200	_____	_____
Health	1,620	_____	_____
Education	400	_____	_____
Insurance	1,360	_____	_____
Savings	2,200	_____	_____
Charity	1,750	_____	_____
Recreation	1,340	_____	_____
Miscellaneous	1,720	_____	_____
Net Income	_____		\$30,000



Solving for the Rate

EXAMPLE

rate base percentage
 ↓ ↓ ↓
 What percent of 53 is 10.6?
 $N \times 53 = 10.6$
 $N = 10.6 \div 53$
 $N = 0.2$
 $N = 20\%$

Step 1 Divide the percentage by the base to the thousandths place.

Step 2 Write the quotient as a percent. Round if needed.

The number of decimal places in the quotient will be determined by the degree of accuracy needed.

EXAMPLE

What percent of 1.8 is 0.0959? Round the answer to the nearest tenth of a percent.

$$\begin{aligned}
 N \times 1.8 &= 0.0959 \\
 N &= 0.0959 \div 1.8 \\
 N &= 0.0532 \quad \leftarrow \text{less than five} \\
 N &= 5.3\%
 \end{aligned}$$

$$\begin{array}{r}
 .0532 \\
 1.8 \overline{)0.09590} \\
 \underline{1.8} \\
 179 \\
 \underline{180} \\
 90 \\
 \underline{90} \\
 0
 \end{array}$$

↑
Write a zero for one additional place.

Directions Solve for the rate. Do not round the answers.

- | | |
|---------------------------------------|--|
| 1. What percent of 85 is 13.6? _____ | 6. What percent of 4.2 is 0.1596? _____ |
| 2. What percent of 35 is 13.65? _____ | 7. What percent of 20 is 0.03? _____ |
| 3. What percent of 17 is 0.493? _____ | 8. What percent of 0.73 is 0.0438? _____ |
| 4. What percent of 35 is 52.5? _____ | 9. What percent of 26 is 2.08? _____ |
| 5. What percent of 9.6 is 0.48? _____ | 10. What percent of 295 is 2.36? _____ |

Directions Solve for the rate. Round to the nearest tenth of a percent.

- | | |
|--------------------------------------|--------------------------------------|
| 1. What percent of 43 is 16.7? _____ | 6. What percent of 37 is 3? _____ |
| 2. What percent of 300 is 12? _____ | 7. What percent of 9 is 0.46? _____ |
| 3. What percent of 63 is 26.4? _____ | 8. What percent of 18 is 36? _____ |
| 4. What percent of 72 is 53? _____ | 9. What percent of 248 is 50? _____ |
| 5. What percent of 13 is 26.4? _____ | 10. What percent of 9.3 is 37? _____ |



Using Circle Graphs

EXAMPLE

Nancy's investment budget provides for a \$500 savings, \$300 in stocks, and \$100 in bonds. Draw a circle graph to show the percent budgeted in each category.

Step 1 Find the total amount of his budget.

$$\begin{array}{r} \$500 \\ 300 \\ + 100 \\ \hline \$900 \end{array}$$

Step 3 Find the degrees for each category

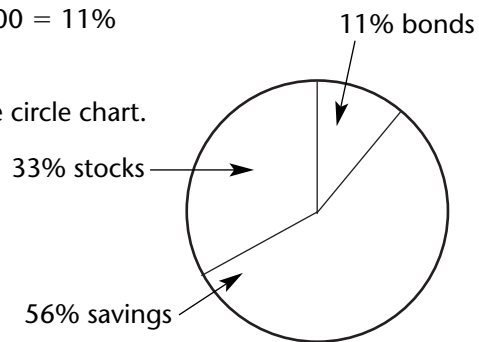
$$\begin{array}{l} 56\% \times 360 = 202^\circ \\ 33\% \times 360 = 119^\circ \\ 11\% \times 360 = 40^\circ \end{array}$$

Check that the degrees total 360. Some error may occur due to rounding.

Step 2 Find the percent in each category

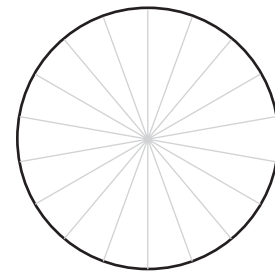
$$\begin{array}{l} 500 \div 900 = 56\% \\ 300 \div 900 = 33\% \\ 100 \div 900 = 11\% \end{array}$$

Step 4 Draw the circle chart.

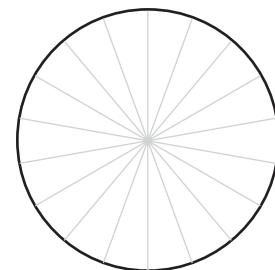


Directions Draw a circle graph for each problem. Each chart is marked in 20 degree sections. Draw in your own lines to show your answers.

- Billy Joe's monthly housing budget covers 75% rent, 10% new furnishings, 5% decorating and 10% repairs. Draw a circle graph to show the percent budgeted in each category.



- Pilantana's clothing budget includes \$135 for new clothes, \$45 for dry cleaning, \$90 for accessories. Draw a circle graph to show how much is budgeted for each category.



Review of Basic Operations with Decimals

1. $2.3 + 5 + 0.941 =$ _____
2. $4.5 - 0.931 =$ _____
3. $4.5 \times 0.31 =$ _____
4. $24.24 \div 4.8 =$ _____
5. $7 - 0.8012 =$ _____
6. $0.0387 \times 0.64 =$ _____
7. $3,001 \times 3.4 =$ _____
8. $3.04 - 0.95 =$ _____
9. $6.9 \times 0.34 =$ _____
10. $5.6 + 91 + 0.76 =$ _____
11. $9.01 - 3.9 =$ _____
12. $234 \div 45 =$ _____
13. $3.4 \times 0.023 =$ _____
14. $44.4 - 7.816 =$ _____
15. $39.648 \div 5.6 =$ _____
16. $801.11 - 34.551 =$ _____
17. $18.29 \div 3.1 =$ _____
18. $0.027 \times 0.006 =$ _____
19. $0.603 \times 0.101 =$ _____
20. $91 + 2.7 + 0.003 =$ _____
21. $0.029 - 0.02001 =$ _____
22. $74.358 \div 27 =$ _____
23. $0.0303 \times 4.1 =$ _____
24. $384.04 + 0.927 + 0.1 =$ _____
25. $21.25 \div 2.5 =$ _____
26. $3 + 4.5 + 2.21 =$ _____
27. $3.5 - 1.29 =$ _____
28. $83 + 2.3 + 0.939 =$ _____
29. $1.7064 \div 0.24 =$ _____
30. $85 + 3.53 + 2 + 0.75 =$ _____
31. $0.1632 \div 0.08 =$ _____
32. $9 - 0.99 =$ _____
33. $3.096 \div 1.2 =$ _____
34. $6.22 \times 0.002 =$ _____
35. $2 - 1.402 =$ _____
36. $401.1 + 29.53 + 1.2 =$ _____
37. $61 - 0.28 =$ _____
38. $0.4387 - 0.41 =$ _____
39. $7 + 2.8 + 1 + 34.99 =$ _____
40. $49.01 + 3 + 2.31 + 8 =$ _____
41. $58.3 \times 2.4 =$ _____
42. $4.1 - 3.009 =$ _____
43. $0.00528 \div 0.66 =$ _____
44. $0.08917 - 0.00991 =$ _____
45. $73.94 + 5.6 + 2 + 0.916 =$ _____
46. $1 - 0.1028 =$ _____
47. $804.04 - 290.192 =$ _____
48. $5.20251 \div 5.1 =$ _____



Simple Interest

EXAMPLE

Francie lends \$1,000 to her cousin, Sean, for 9 months. Sean agrees to pay Francie $3\frac{5}{8}\%$ simple interest each year. How much interest will Sean pay to Francie? Round the answer to the nearest cent.

Step 1 Write the time as a fraction of a year

$$9 \text{ months} = \frac{9}{12} \text{ year}$$

Step 2 Write interest rate as a decimal

$$\frac{5}{8} = .625$$

$$3\frac{5}{8}\% = 3.625\%$$

Step 3 Find the Interest

Recall $I = P \times R \times T$

$$I = \$1,000 \times .03625 \times 9 \div 12$$

$$I = \$27.19$$

Sean will pay \$27.19 in interest to Francie.

Directions Complete the chart. Round amounts to the nearest cent.

	Principal	Rate	Months	Interest
1.	\$1,000	$3\frac{1}{8}\%$	6	
2.	\$1,000	$3\frac{1}{8}\%$	9	
3.	\$1,000	$3\frac{1}{8}\%$	12	
4.	\$1,000	$3\frac{5}{8}\%$	6	
5.	\$1,000	$3\frac{5}{8}\%$	9	
6.	\$1,000	$3\frac{7}{8}\%$	6	
7.	\$1,000	$3\frac{7}{8}\%$	12	
8.	\$1,000	$3\frac{7}{8}\%$	18	
9.	\$1,000	$3\frac{7}{8}\%$	24	
10.	\$1,000	$3\frac{7}{8}\%$	30	
11.	\$5,000	7%	48	
12.	\$7,500	7%	48	
13.	\$10,000	7%	48	
14.	\$12,500	7%	48	
15.	\$15,000	7%	48	
16.	\$23,000	5%	60	
17.	\$23,000	6%	60	



Compound Interest over Two Years

EXAMPLE

<i>Principal</i>	<i>Annual Rate</i>	<i>Time in Years</i>
\$600	8%	2

Compute the balance and the total interest.

Step 1

\$ 600	Principal
× .08	Annual rate
<u>\$48.00</u>	1st year's interest

Step 2

\$600	Principal
+ 48	1st year's interest
<u>\$648</u>	Balance after 1st year

Step 3

\$ 648	Balance after 1st year
× .08	Annual rate
<u>\$51.84</u>	2nd year's interest

Step 4

\$648.00	Balance after 1st year
+ 51.84	2nd year's interest
<u>\$699.84</u>	Balance after 2nd year

Step 5

\$48.00	1st year's interest
+ 51.84	2nd year's interest
<u>\$99.84</u>	Total interest

After 2 years the balance is \$699.84
and the total interest is \$99.84

Directions Compute the balance and the total interest for each of these 2-year loans. Round to the nearest cent, if necessary.

Principal	Annual Rate	Balance	Interest	Principal	Annual Rate	Balance	Interest
1. \$800	8%	_____	_____	16. \$600	7%	_____	_____
2. \$500	10%	_____	_____	17. \$200	10%	_____	_____
3. \$500	6%	_____	_____	18. \$800	14%	_____	_____
4. \$100	9%	_____	_____	19. \$4,000	7%	_____	_____
5. \$900	6%	_____	_____	20. \$900	11%	_____	_____
6. \$200	13%	_____	_____	21. \$100	6%	_____	_____
7. \$300	7%	_____	_____	22. \$400	12%	_____	_____
8. \$400	8%	_____	_____	23. \$600	10%	_____	_____
9. \$9,000	13%	_____	_____	24. \$100	5%	_____	_____
10. \$200	11%	_____	_____	25. \$900	12%	_____	_____
11. \$700	10%	_____	_____	26. \$800	10%	_____	_____
12. \$900	14%	_____	_____	27. \$700	9%	_____	_____
13. \$800	7%	_____	_____	28. \$800	4%	_____	_____
14. \$200	11%	_____	_____	29. \$4,000	5%	_____	_____
15. \$900	10%	_____	_____	30. \$900	7%	_____	_____



Doubling Your Money

EXAMPLE

Jean withdraws his 9% simple interest at the end of each year. He leaves the principal in savings so that it will continue to earn interest. How long will it take for him to earn as much interest as the amount he invested?

Recall: To double your money with simple interest, divide 100 by the rate of interest.

$$\begin{array}{r} 11 \text{ years} \\ 9 \overline{)100} \end{array}$$

Jeanette does not withdraw her interest. That way it becomes compound interest. How long will it take for her investment to double?

Recall: To double your money at compound interest, divide 72 by the rate of interest.

$$\begin{array}{r} 8 \text{ years} \\ 9 \overline{)72} \end{array}$$

Jean's money will double in 11 years. Jeanette's will double in 8.

Directions Find how many years it will take to double these investments.

	Investor	Interest Rate	Compounding	Years to Double		Investor	Interest Rate	Compounding	Years to Double
1.	Joseph	4%	Simple		11.	Kai	9%	Simple	
2.	Guisseppe	4%	Annual		12.	Mary	9.25%	Simple	
3.	Jose	8%	Simple		13.	Susan	9.5%	Simple	
4.	Giovanni	8%	Annual		14.	Marta	9.75%	Simple	
5.	Jeanne	3.2%	Simple		15.	Shu Lin	10%	Simple	
6.	John	3.2%	Annual		16.	Joan	9%	Annual	
7.	Sean	5.4%	Annual		17.	Juanita	9.2%	Annual	
8.	Ivan	5.4%	Simple		18.	Jeanika	9.5%	Annual	
9.	Johan	7.6%	Annual		19.	Larue	9.75%	Annual	
10.	Juan	7.6%	Simple		20.	Marsha	10%	Annual	



Writing Checks

EXAMPLE
Sample Check

Labels and their corresponding fields on the sample check:

- Drawer's name and address:** BETTY RAMOS, 2931 FORESTVIEW DRIVE, KANSAS CITY, MISSOURI 64108
- Date check is written:** DATE _____
- Check number:** NO. 520
- ABA or bank ID number:** 7-89 520
- Amount of check in numbers:** \$ _____
- Amount of check in words:** _____ DOLLARS
- Purpose of check:** RIVER BANK *and Trust Company*
- Account number:** 05 200089610 77 2 752 24 10 21
- Drawer's signature:** _____

Directions Write a check to each of these persons. Use the blank checks on Workbook Activity 110.

Payee	Amount	Date
1. Tiffany Williams	\$ 26.94	October 16, 2003
2. Clyde Hastings	\$137.11	October 23, 2003
3. Charles Goff	\$269.84	November 7, 2003
4. Cassandra Doty	\$337.49	May 3, 2004
5. Stephen Cheng	\$496.50	October 16, 2004
6. Sumi Maeda	\$397.00	February 28, 2004
7. Thomas Soto	\$403.64	December 23, 2005
8. Edwina Saunders	\$910.88	February 24, 2005
9. Carol Ostman	\$875.29	October 25, 2005

Blank Checks

Directions Make copies of these checks to use with Workbook Activity 109.
Write in your name, address, and the check sequence number.

Your Name _____	NO. _____
Your Address _____	
Your City, State, and ZIP Code _____	
DATE _____	$\frac{7-89}{520}$
PAY TO THE ORDER OF _____	\$ _____
_____	DOLLARS
RIVER BANK <i>and Trust Company</i>	
FOR _____	_____
⑆05 2000896⑆0??2⑆752 24 10 2⑆	

Your Name _____	NO. _____
Your Address _____	
Your City, State, and ZIP Code _____	
DATE _____	$\frac{7-89}{520}$
PAY TO THE ORDER OF _____	\$ _____
_____	DOLLARS
RIVER BANK <i>and Trust Company</i>	
FOR _____	_____
⑆05 2000896⑆0??2⑆752 24 10 2⑆	

Your Name _____	NO. _____
Your Address _____	
Your City, State, and ZIP Code _____	
DATE _____	$\frac{7-89}{520}$
PAY TO THE ORDER OF _____	\$ _____
_____	DOLLARS
RIVER BANK <i>and Trust Company</i>	
FOR _____	_____
⑆05 2000896⑆0??2⑆752 24 10 2⑆	



Review of Basic Operations with Fractions

1. $\frac{3}{7} \times \frac{5}{6} =$ _____

16. $23 \div 1\frac{2}{13} =$ _____

31. $8\frac{3}{14} \times 1\frac{1}{2} =$ _____

2. $2\frac{2}{5} + 3\frac{4}{9} =$ _____

17. $\frac{4}{7} + \frac{3}{8} =$ _____

32. $4\frac{26}{30} \div 146 =$ _____

3. $13 + \frac{13}{24} =$ _____

18. $1\frac{1}{7} \times 2 =$ _____

33. $1\frac{2}{3} - \frac{7}{8} =$ _____

4. $\frac{7}{8} + 5\frac{1}{6} =$ _____

19. $2\frac{1}{13} \times \frac{5}{9} =$ _____

34. $18 - 9\frac{11}{23} =$ _____

5. $\frac{23}{24} \times \frac{48}{46} =$ _____

20. $1\frac{6}{7} \div \frac{13}{14} =$ _____

35. $43\frac{2}{9} - 12\frac{1}{8} =$ _____

6. $12\frac{2}{9} - 2\frac{3}{27} =$ _____

21. $\frac{4}{9} \div \frac{16}{72} =$ _____

36. $1\frac{3}{10} + 9\frac{16}{25} =$ _____

7. $\frac{6}{7} \times 6\frac{1}{6} =$ _____

22. $\frac{5}{12} + \frac{8}{60} =$ _____

37. $3\frac{6}{7} + 9\frac{1}{6} =$ _____

8. $\frac{12}{25} \div \frac{16}{18} =$ _____

23. $19 - 9\frac{1}{7} =$ _____

38. $1\frac{1}{2} \div 2\frac{3}{7} =$ _____

9. $65 - \frac{24}{25} =$ _____

24. $5\frac{2}{3} + 12\frac{6}{10} =$ _____

39. $28\frac{7}{81} - \frac{5}{9} =$ _____

10. $\frac{11}{25} \div 2\frac{1}{5} =$ _____

25. $18 - 2\frac{1}{24} =$ _____

40. $12 + 9\frac{12}{13} =$ _____

11. $8\frac{2}{5} - 5\frac{4}{5} =$ _____

26. $12\frac{10}{11} - 10\frac{21}{22} =$ _____

41. $\frac{2}{11} \times 1\frac{1}{10} =$ _____

12. $5 - 2\frac{7}{15} =$ _____

27. $6\frac{8}{18} + 9\frac{1}{6} =$ _____

42. $\frac{3}{19} \times \frac{38}{39} =$ _____

13. $6\frac{2}{11} \times 1\frac{1}{34} =$ _____

28. $30\frac{24}{26} + 4\frac{2}{78} =$ _____

43. $\frac{2}{13} + \frac{4}{10} =$ _____

14. $8\frac{10}{17} - 3\frac{15}{17} =$ _____

29. $1\frac{2}{15} \div 17 =$ _____

44. $8\frac{2}{7} \div \frac{2}{21} =$ _____

15. $46\frac{27}{28} - 32\frac{5}{7} =$ _____

30. $14\frac{2}{15} + 2\frac{3}{45} =$ _____

45. $\frac{33}{44} \times \frac{66}{77} =$ _____



Changes in Stock Prices

EXAMPLE

Karl bought some stock at 107.75. Today he sold the stock at 118.50. What is Karl's profit per share?

$$\begin{array}{r}
 \$118.50 \text{ Selling price} \\
 -107.75 \text{ Buying price} \\
 \hline
 \$ 10.75 \text{ Karl's profit}
 \end{array}$$

Karl's profit per share is \$10.75.

Directions Compute the price changes for these stocks.
Subtract the smaller price from the larger price.
The answer to Number 1 is 138.63.

	New Price	Old Price	Change		New Price	Old Price	Change
1.	149.50	10.875	_____	16.	79.50	107.25	_____
2.	202.625	28.875	_____	17.	195.00	183.875	_____
3.	38.625	101.25	_____	18.	162.50	69.75	_____
4.	107.625	188.25	_____	19.	164.50	58.625	_____
5.	203.625	104.875	_____	20.	68.875	133.25	_____
6.	52.50	197.25	_____	21.	10.875	162.25	_____
7.	166.00	108.625	_____	22.	94.875	113.125	_____
8.	145.00	35.75	_____	23.	206.625	21.75	_____
9.	157.50	82.625	_____	24.	67.625	69.125	_____
10.	202.00	195.875	_____	25.	119.625	192.125	_____
11.	117.625	17.875	_____	26.	98.625	135.125	_____
12.	160.75	169.375	_____	27.	126.625	1,791.375	_____
13.	26.50	175.375	_____	28.	18.625	89.125	_____
14.	23.50	68.25	_____	29.	136.625	116.875	_____
15.	91.50	40.75	_____	30.	161.625	169.375	_____



The Break-Even Point

EXAMPLE The break-even point is the total amount paid per share, including purchase price, commissions, and fees.

<i>Total Purchase Price</i>	<i>Number of Shares</i>	<i>Buying Commission</i>	<i>Selling Commission</i>	<i>Fees</i>
\$8,100	150	\$106.50	\$97.35	\$2.10
Step 1:	Step 2:			
\$8,100.00	$\$8,305.95 \div 150 = \55.373			
106.50				
97.35				
+ 2.10				
<u>\$8,305.95</u>				

The break-even point is \$55.38. (Rounded to the next cent.)

Directions Compute the break-even point for these stocks. Round up to the next cent.

	Total Purchase Price	Number of Shares	Buying Commission	Selling Commission	Fees	Break-Even Point
1.	\$8,841	100	\$145.49	\$145.92	\$2.25	_____
2.	\$9,811	700	\$157.93	\$158.24	\$1.24	_____
3.	\$6,540	500	\$114.10	\$114.55	\$1.33	_____
4.	\$10,203	700	\$159.18	\$158.54	\$1.17	_____
5.	\$7,758	100	\$124.48	\$124.23	\$1.93	_____
6.	\$6,463	700	\$112.05	\$110.93	\$2.91	_____
7.	\$8,926	500	\$148.19	\$149.38	\$2.63	_____
8.	\$4,483	400	\$93.49	\$93.30	\$2.20	_____
9.	\$6,506	500	\$120.92	\$121.28	\$2.23	_____
10.	\$15,467	300	\$206.22	\$204.57	\$1.63	_____
11.	\$5,192	400	\$106.08	\$106.29	\$1.81	_____
12.	\$6,519	400	\$111.28	\$110.62	\$2.52	_____
13.	\$2,704	200	\$75.42	\$75.12	\$2.18	_____
14.	\$10,028	600	\$154.30	\$153.68	\$2.25	_____



Earning Dividends

EXAMPLE

Marcus will use his dividend to purchase more shares of stock. He owns 1,525 shares priced at \$7.15. How many shares can he afford if he earns a dividend of \$0.0375 per share? Round to the next lower share.

Step 1 Find dividend.

$$\begin{array}{r} 1,525 \text{ shares} \\ \times \$0.0375 \text{ dividend per share} \\ \hline \$57.19 \end{array}$$

Step 2 Find number of additional shares he can buy.

$$\begin{array}{r} 7.998 \\ 7.15 \overline{) 57.1900} \end{array}$$

Marcus can buy 7 additional shares of stock.

Directions Compute the number of shares that can be purchased in each case.

1. Darnell wants to use his dividends to purchase more stock. He owns 2,516 shares. The dividend is \$0.865 per share. How many shares of stock priced at \$56.15 can he purchase? _____
2. Denzel wants to use his dividends to purchase more stock. He owns 675 shares. The dividend is \$1.182 per share. How many shares of stock priced at \$4.539 can he purchase? _____
3. Mary Suzette wants to use her dividends to purchase more stock. She owns 1200 shares. The dividend is \$0.594 per share. How many shares of stock priced at \$16.597 can she purchase? _____
4. Arnell wants to use his dividends to purchase more stock. He owns 153 shares. The dividend is \$0.80 per share. How many shares of stock priced at \$14.75 can he purchase? _____
5. Cliff wants to use his dividends to purchase more stock. He owns 398 shares. The dividend is \$1.36 per share. How many shares of stock priced at \$15.875 can he purchase? _____
6. Lola wants to use her dividends to purchase more stock. She owns 1376 shares. The dividend is \$1.72 per share. How many shares of stock priced at \$71.00 can she purchase? _____
7. Yvonne wants to use her dividends to purchase more stock. She owns 1,600 shares. The dividend is \$0.45 per share. How many shares of stock priced at \$9.00 can she purchase? _____
8. Shi Yin wants to use her dividends to purchase more stock. She owns 425 shares. The dividend is \$0.046 per share. How many shares of stock priced at \$9.795 can she purchase? _____



Reading a Credit Card Statement

EXAMPLE

River Bank		Mail to		
		PO Box 191 Myo, AG 00000		
May 2004 Statement				
Account Number	Name	Statement Date	Payment Due Date	
1234-5678-90	Jane Doe	5/22/04	6/20/04	
Credit Line	Credit Available	New Balance	Minimum Payment	
\$1,500.00	\$1,067.84	\$432.16	\$25.00	
Reference	Sold	Posted	Description	Amount
101010101	4/30/04	5/01/04	NOISY MUSIC STORE	45.17
110110110		5/16/04	PAYMENT THANK YOU	- 156.35
143415651	5/20/04	5/21/04	MAJOR APPLIANCE	386.99
Previous Balance	156.35	Current Amount Due	432.16	
Purchases	432.16	Amount Past Due		
Cash Advance		Amount over Credit Limit		
Payments	156.35	Minimum Payment Due	25.00	
Credits				
FINANCE CHARGES				
Late Charges				
New Balance	432.16			
FINANCE CHARGE SUMMARY				
	Purchases	Advances	For Customer Service	
Periodic Rate	1.50%	0.56%	1-800-RIVERBANK	
Annual Percentage Rate	18.00%	6.49%	For Lost or Stolen Card	
			1-800-LOSTCARD	
Make check payable to River Bank. Include account number on check.				

Directions Answer the following questions about the sample credit card statement.

- Who is the account holder? _____
- What amount is due for this statement? _____
- Why is there a minus sign in front of the number 156.35? _____
- What amount should Jane pay by 6/20/04? _____
- What amount must she pay by 6/20/04? _____
- Suppose she only paid the minimum payment due. What would be her unpaid balance? _____
- Suppose she only paid the minimum payment due. What interest would be assessed for the next month? _____
- How long is it between the Statement Date and the Payment Due Date? _____
- How many transactions did Jane have in the last statement period? _____
- How is the Credit Available amount calculated? _____



The Key to Large Numbers

EXAMPLE The U.S. budget provided \$1,347,563,115.98 for a project. Round this to two digits and write in words.

\$1,347,563,115.98 ~ 1,300,000,000 = 1.3 billion

Recall

1,000 = one thousand
 1,000,000 = one million
 1,000,000,000 = one billion
 1,000,000,000,000 = one trillion

Directions Complete the chart.

		Numbers in Digits	Numbers in Words Round answer to two digits.
1.	Distance from Earth to Sun (average)	93,000,000 miles	
2.	U.S. Personal Spending in Restaurants	\$334,700,000,000	
3.	Days in a Year for Pluto	90,465	
4.	Number of Earths to equal volume of the sun	1,304,000	
5.	Distance Earth to Moon (average)	238,855 miles	
6.	Total Federal Income	\$2,025,038,000,000	
7.	Total Government Spending by all 50 States	\$1,135,758,000,000	
8.	Total Personal Taxes	\$1,152,000,000,000	
9.	Commerce Department Budget	\$7,931,000,000	
10.	Justice Department Budget	\$19,000,000,000	
11.	Social Insurance Contributions	\$652,851,000,000	
12.	Interest Due on Public Debt	\$362,100,000,000	
13.	Stars in the Milky Way		200 billion
14.	Maximum distance Sun to Pluto		4,538.7 million miles
15.	Individual Income Tax Revenues		\$1 trillion
16.	U.S. Personal Spending on Food		\$509.4 billion



Review of Basic Operations with Percents

1. $0.56 =$ _____ %
2. 47.8 is 10% of _____
3. $\frac{3}{8} =$ _____ %
4. What % of 16 is 2? _____
5. $147.5\% =$ _____ (decimal)
6. $\frac{5}{8} =$ _____ %
7. 14% of 605 = _____
8. 3492 is 36% of _____
9. What percent of 60 is 36? _____
10. $38.2\% =$ _____ (decimal)
11. 6 is 25% of _____
12. _____ of 500 is 50?
13. $3.15 =$ _____ %
14. $0.095 =$ _____ %
15. $\frac{7}{8} =$ _____ %
16. $9.5\% =$ _____ (decimal)
17. $8\% =$ _____ (decimal)
18. 48 is _____ % of 96
19. $2.3\% =$ _____ (decimal)
20. 13 is _____ % of 52
21. 36% of 85 = _____
22. 94 is 20% of _____
23. $0.07 =$ _____ %
24. 81 is 18% of _____
25. What percent of 80 is 10? _____
26. _____ is 20% of 85
27. $\frac{2}{5} =$ _____ %
28. _____ is 12.5% of 75.4
29. 57% of 80 = _____
30. $\frac{45}{75} =$ _____ %
31. 15% of 90 = _____
32. _____ % = $\frac{4}{5}$
33. $0.005 =$ _____ %
34. _____ % = 0.316
35. $0.25 =$ _____ %
36. What percent of 50 is 30? _____
37. What percent of 36 is 18? _____
38. 17 is what percent of 68? _____
39. $\frac{1}{4} =$ _____ %
40. 75 is 25% of _____



Paying Taxes

EXAMPLE Lijanne earned a total of \$37,892 in one year. She had deductions for a student loan of \$3,247, moving expenses of \$358.91, and health insurance of \$376.80. Find her total deductions and taxable income.

Step 1 Find total deductions

$$\begin{array}{r} \$3,247.00 \\ 358.91 \\ + 376.80 \\ \hline \$3,982.71 \end{array}$$

Step 2 Subtract to find taxable income.

$$\begin{array}{r} \$37,892.00 \text{ total income} \\ - 3,982.71 \text{ deductions} \\ \hline \$33,909.29 \text{ taxable income} \end{array}$$

Lijanne had total deductions of \$3,982.71 and taxable income of \$33,909.29.

Directions Find the total deductions and taxable income in each case.

	Item	Exemptions and Deductions	Total Exemptions and Deductions	Total Income	Taxable Income
1.	Exemptions for dependents Moving expenses Business loss	\$8,700 \$3,541 \$357		\$46,781	
2.	Exemptions for dependents Standard deduction	\$11,600 \$7,600		\$76,902	
3.	Exemptions for dependents Student loan Medical expenses	\$5,800 \$3,500 \$15,790		\$125,630	
4.	Exemptions for dependents Other taxes Health insurance Medical expenses	\$17,400 \$352 \$6,600 \$561		\$250,714	
5.	Exemptions for dependents Standard deduction	\$14,500 \$6,650		\$67,099	
6.	Exemptions for dependents Self-employment tax Health insurance Business expenses	\$11,600 \$4,500 \$3,721 \$11,708		\$145,809	
7.	Exemptions for dependents Standard deduction	\$20,300 \$7,600		\$90,742	
8.	Exemptions for dependents Standard deduction	\$2,900 \$4,550		\$35,826	
9.	Exemptions for dependents Standard deduction	\$5,800 \$3,800		\$44,500	

Reading Tax Tables

EXAMPLE

Jerry and Lisa Reese are married and filing jointly. Their adjusted gross income is \$26,900. Use the chart to find their tax.

Solution: The tax will be \$4,039.

Tax Table Based on Taxable Income											
If 1040A, line 19, OR 1040EZ, line 7 is—		And you are—				If 1040A, line 19, OR 1040EZ, line 7 is—		And you are—			
At least	But less than	Single (and 1040EZ filers)	Married filing jointly	Married filing separately	Head of a household	At least	But less than	Single (and 1040EZ filers)	Married filing jointly	Married filing separately	Head of a household
Your tax is—						Your tax is—					
25,000						26,000					
25,000	25,050	3,972	3,754	4,472	3,754	26,000	26,050	4,252	3,904	4,752	3,904
25,050	25,100	3,986	3,761	4,486	3,761	26,050	26,100	4,266	3,911	4,766	3,911
25,100	25,150	4,000	3,769	4,500	3,769	26,100	26,150	4,280	3,919	4,780	3,919
25,150	25,200	4,014	3,776	4,514	3,776	26,150	26,200	4,294	3,926	4,794	3,926
25,200	25,250	4,028	3,784	4,528	3,784	26,200	26,250	4,308	3,934	4,808	3,934
25,250	25,300	4,042	3,791	4,542	3,791	26,250	26,300	4,322	3,941	4,822	3,941
25,300	25,350	4,056	3,799	4,556	3,799	26,300	26,350	4,336	3,949	4,836	3,949
25,350	25,400	4,070	3,806	4,570	3,806	26,350	26,400	4,350	3,956	4,850	3,956
25,400	25,450	4,084	3,814	4,584	3,814	26,400	26,450	4,364	3,964	4,864	3,964
25,450	25,500	4,098	3,821	4,598	3,821	26,450	26,500	4,378	3,971	4,878	3,971
25,500	25,550	4,112	3,829	4,612	3,829	26,500	26,550	4,392	3,979	4,892	3,979
25,550	25,600	4,126	3,836	4,626	3,836	26,550	26,600	4,406	3,986	4,906	3,986
25,600	25,650	4,140	3,844	4,640	3,844	26,600	26,650	4,420	3,994	4,920	3,994
25,650	25,700	4,154	3,851	4,654	3,851	26,650	26,700	4,434	4,001	4,934	4,001
25,700	25,750	4,168	3,859	4,668	3,859	26,700	26,750	4,448	4,009	4,948	4,009
25,750	25,800	4,182	3,866	4,682	3,866	26,750	26,800	4,462	4,016	4,962	4,016
25,800	25,850	4,196	3,874	4,696	3,874	26,800	26,850	4,476	4,024	4,976	4,024
25,850	25,900	4,210	3,881	4,710	3,881	26,850	26,900	4,490	4,031	4,990	4,031
25,900	25,950	4,224	3,889	4,724	3,889	26,900	26,950	4,504	4,039	5,004	4,039
25,950	26,000	4,238	3,896	4,738	3,896	26,950	27,000	4,518	4,046	5,018	4,046

Directions Use the tax chart above to determine the tax due in each case. Write your answer on the line.

Filing Status	Adjusted Gross Income	Tax Due
1. Married filing separately	\$25,262	_____
2. Married filing separately	\$25,329	_____
3. Married filing jointly	\$25,967	_____
4. Married filing jointly	\$25,754	_____
5. Head of a household	\$26,443	_____
6. Single	\$26,086	_____
7. Married filing separately	\$26,820	_____
8. Single	\$25,295	_____
9. Head of a household	\$26,192	_____
10. Single	\$25,900	_____
11. Married filing separately	\$26,871	_____
12. Married filing jointly	\$26,563	_____
13. Married filing separately	\$26,607	_____



Computing Taxes Owed

EXAMPLE Nina Tran is filing a single return. Her adjusted gross income is \$128,840. Nina uses Schedule X to help her figure the tax she owes because her income is \$100,000 or more.

Solution:

\$ 128,840	Adjusted gross income	\$10,890.00	\$31,832.50	Tax for \$117,950
– 117,950	Nearest amount on Schedule X	× .36	+ 3,920.40	36% of \$10,890.00
\$ 10,890	Amount over \$117,950	\$ 3,920.40	\$35,752.90	

Round \$35,752.90 to the nearest dollar.

Nina owes \$35,753.00 in taxes.

Schedule X — Use this if your filing status is **Single**

If the amount on Form 1040, line 37 is:	But not over —	Enter on Form 1040, line 38	of the amount over
Over —			
\$0	\$23,350	----- 15%	\$0
23,350	56,550	\$3,502.50 + 28%	23,350
56,550	117,950	12,798.50 + 31%	56,550
117,950	256,500	31,832.50 + 36%	117,950
256,500	-----	81,710.50 + 39.6%	256,500

Directions Use Schedule X to compute the income tax on these adjusted gross incomes. Round each answer to the nearest dollar.

	Adjusted Gross Income	Taxes Owed		Adjusted Gross Income	Taxes Owed
1.	\$116,197	_____	7.	\$226,314	_____
2.	\$159,195	_____	8.	\$257,419	_____
3.	\$117,375	_____	9.	\$172,218	_____
4.	\$140,630	_____	10.	\$101,046	_____
5.	\$118,629	_____	11.	\$264,779	_____
6.	\$130,952	_____	12.	\$128,362	_____

Refund or Balance Due

EXAMPLE

Peg is filing a head of household return. Her taxable income on line 39 of Form 1040 is \$41,375. She has already paid \$8,432.56 in withholding tax. Compute the amount to be refunded or the balance due.

Step 1 Find the tax bracket for total income.

\$41,375 is between \$41,350 and \$41,400.

Step 2 Find the column for filing status.

Locate Head of Household column.

Step 3 Find the tax owed.

The amount shown where the tax bracket and filing status column meet is \$6,847.

Step 4 Subtract to find difference.

$$\begin{array}{r} \$8,432.56 \text{ Amount withheld} \\ - 6,847.00 \text{ Amount of tax owed} \\ \hline \$1,585.56 \text{ Amount of refund} \end{array}$$

Peg is owed a refund of \$1,585.56.

If line 39 (taxable income) is—		And you are—			
At least	But less than	Single	Married filing jointly	Married filing separately	Head of a household
41,000		Your tax is—			
41,000	41,050	7,901	6,154	8,457	6,751
41,050	41,100	7,914	6,161	8,471	6,764
41,100	41,150	7,928	6,169	8,484	6,778
41,150	41,200	7,942	6,176	8,498	6,792
41,200	41,250	7,956	6,184	8,512	6,806
41,250	41,300	7,969	6,191	8,526	6,819
41,300	41,350	7,983	6,199	8,539	6,833
41,350	41,400	7,997	6,206	8,553	6,847
41,400	41,450	8,011	6,214	8,567	6,861
41,450	41,500	8,024	6,221	8,581	6,874
41,500	41,550	8,038	6,229	8,594	6,888
41,550	41,600	8,052	6,236	8,608	6,902
41,600	41,650	8,066	6,244	8,622	6,916
41,650	41,700	8,079	6,251	8,636	6,929
41,700	41,750	8,093	6,259	8,649	6,943
41,750	41,800	8,107	6,266	8,663	6,957
41,800	41,850	8,121	6,274	8,677	6,971
41,850	41,900	8,134	6,281	8,691	6,984
41,900	41,950	8,148	6,289	8,704	6,998
41,950	42,000	8,162	6,296	8,718	7,012

Directions Compute the amount to be refunded or balance due in each case.

	Taxable Income	Filing Status	Amount of Tax Owed	Amount of Tax Withheld	Balance Due or Refund?	Amount Due or Refunded
1.	\$41,528	Single		\$10,476.93		
2.	\$41,183	Married, filing jointly		\$7,376.09		
3.	\$41,472	Married, filing separately		\$7,988.46		
4.	\$41,233	Single		\$7,563.21		
5.	\$41,391	Head of a household		\$8,223.71		
6.	\$41,657	Single		\$9,255.11		
7.	\$41,814	Married, filing jointly		\$9,340.70		
8.	\$41,063	Head of a household		\$6,803.12		
9.	\$41,909	Married, filing separately		\$10,404.33		
10.	\$41,777	Married, filing jointly		\$5,999.04		
11.	\$41,600	Head of a household		\$9,406.77		
12.	\$41,650	Single		\$10,756.00		



Paying Property Taxes

EXAMPLE

The tax assessment on Carol's home is \$32,320. The local tax rate is \$3.66 per \$100 of the assessment. What is Carol's annual property tax?

Assessment

\$32,320

Rate per \$100

\$3.66

Step 1:

$$\$32,320 \div \$100 = \$323.20$$

Step 2:

$$\$323.20 \times \$3.66 = \$1,182.9120$$

Solution: Carol's annual property tax is \$1,182.92.
(Round to the next cent.)

Directions Compute the property tax. Round to the next cent if necessary.

Assessment	Rate per \$100	Tax	Assessment	Rate per \$100	Tax
1. \$42,700	\$6.07	_____	20. \$998,815	\$5.96	_____
2. \$82,100	\$5.01	_____	21. \$6,130	\$5.66	_____
3. \$22,780	\$3.51	_____	22. \$25,000	\$2.28	_____
4. \$42,000	\$5.63	_____	23. \$59,600	\$5.19	_____
5. \$40,000	\$3.61	_____	24. \$81,800	\$3.08	_____
6. \$25,400	\$3.42	_____	25. \$64,900	\$3.92	_____
7. \$43,700	\$7.19	_____	26. \$40,130	\$4.26	_____
8. \$88,200	\$4.60	_____	27. \$88,000	\$7.37	_____
9. \$60,500	\$6.23	_____	28. \$100,900	\$7.14	_____
10. \$235,415	\$7.07	_____	29. \$13,400	\$5.16	_____
11. \$83,730	\$4.18	_____	30. \$777,715	\$5.76	_____
12. \$33,800	\$5.65	_____	31. \$22,540	\$4.66	_____
13. \$94,300	\$5.97	_____	32. \$36,600	\$4.98	_____
14. \$90,220	\$3.88	_____	33. \$75,800	\$6.59	_____
15. \$71,200	\$2.10	_____	34. \$50,600	\$6.10	_____
16. \$42,540	\$4.24	_____	35. \$55,800	\$6.22	_____
17. \$81,200	\$1.77	_____	36. \$11,970	\$2.56	_____
18. \$60,400	\$2.69	_____	37. \$82,100	\$3.46	_____
19. \$59,400	\$6.89	_____	38. \$4,500	\$4.25	_____



Review of Basic Skill Operations

1. $243 + 2,003 =$ _____
2. $4.5 \times .002 =$ _____
3. $\frac{1}{9} + \frac{3}{7} =$ _____
4. $3 - 0.453 =$ _____
5. $13,000 - 279 =$ _____
6. $52 + 0.52 =$ _____
7. $2.09 \times 5.9 =$ _____
8. $\frac{3}{10} \times \frac{5}{6} =$ _____
9. $203 + 1,002 + 32$
 $=$ _____
10. $3.001 \times 2.03 =$ _____
11. $2.6 + 12.92 + 5.6$
 $=$ _____
12. $0.208 - 0.091 =$ _____
13. $0.03 + 0.112 + 1.1$
 $=$ _____
14. $3\frac{3}{11} \div 2\frac{1}{5} =$ _____
15. $7 \times 1\frac{5}{6} =$ _____
16. $0.002 - 0.0019 =$ _____
17. $2.3 - 0.0342 =$ _____
18. $5,202 \div 9 =$ _____
19. $4,100 \times 200 =$ _____
20. $\frac{7}{24} \div \frac{14}{36} =$ _____
21. $19 - 7\frac{10}{17} =$ _____
22. $1\frac{5}{8} + 2\frac{1}{6} =$ _____
23. $0.08 + 1.3 =$ _____
24. $14\frac{1}{3} + 13\frac{4}{27} =$ _____
25. $1\frac{7}{9} \times 1\frac{7}{8} =$ _____
26. $83 + 211 + 934$
 $=$ _____
27. $\frac{7}{11} - \frac{1}{22} =$ _____
28. $4\frac{2}{3} \times 3\frac{2}{3} =$ _____
29. $20,031 - 19,823 =$ _____
30. $787,800 \div 78 =$ _____
31. $19\frac{4}{11} + 2 =$ _____
32. $50,010 - 2,992 =$ _____
33. $\frac{2}{3} \times \frac{12}{16} =$ _____
34. $7 + 5.6 + 0.09$
 $=$ _____
35. $1.875 \div 0.15 =$ _____
36. $0.12 \times 0.005 =$ _____
37. $1,890 \div 24 =$ _____
38. $33\frac{2}{11} - \frac{9}{22} =$ _____
39. $21,210 \div 20 =$ _____
40. $518.4 \div 4.8 =$ _____
41. $20 - 19\frac{2}{3} =$ _____
42. $60,491 \div 60 =$ _____
43. $934.33 + 2.6 =$ _____
44. $99.6 - 4.06 =$ _____
45. $6.061 \div 0.11 =$ _____
46. $5\frac{7}{10} + 3\frac{9}{50} =$ _____
47. $921 \times 0.44 =$ _____
48. 1.001×0.002
 $=$ _____



Making Change

EXAMPLE

Sherron Mulgrew makes change by “counting up” from the sale amount to the amount tendered. Her customer, Julie Anderson, purchases \$23.81 worth of goods. Julie gives Sherron a \$20.00 bill and a \$10.00 dollar bill. Here’s a chart of how Sherron makes change for Julie.

Amount Tendered	Amount of Sale	Coins				Bills			
		1¢	5¢	10¢	25¢	\$1.00	\$5.00	\$10.00	\$20.00
\$30.00	\$23.81	4	1	1		1	1		

Sherron says, “\$23.81, 82, 83, 84, 85, 90, \$24.00, \$25.00 and \$30.00” as she counts the change back to Julie.

Directions Complete the chart below showing the change given to each customer. Write what Sherron says while she is “counting up” the change.

1. Kim Ruark

Amount Tendered	Amount of Sale	Coins				Bills			
		1¢	5¢	10¢	25¢	\$1.00	\$5.00	\$10.00	\$20.00
\$5.00	\$4.75								

2. Glenn Austin

\$40.00	\$34.57								
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3. Rosemary Sullivan

\$16.04	\$15.39								
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4. Bryan Umeki

\$20.42	\$17.42								
---------	---------	--	--	--	--	--	--	--	--

5. Jose Cardero

\$15.00	\$10.05								
---------	---------	--	--	--	--	--	--	--	--

6. Mebawa Jabar

\$10.01	\$5.31								
---------	--------	--	--	--	--	--	--	--	--

7. George Keith

\$80.00	\$72.88								
---------	---------	--	--	--	--	--	--	--	--

8. Tabika Thomas

\$35.00	\$30.75								
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The Key to Square Root

EXAMPLE Find the $\sqrt{200}$ using the *divide and average* method.

Step 1 Choose a number, say 10, and divide.

$$\begin{array}{r} 20 \\ 10 \overline{)200} \end{array}$$

Step 2 Average the 2 numbers

$$\begin{array}{r} 10 \quad 15 \\ + 20 \quad 2 \overline{)30} \\ \hline 30 \end{array}$$

Step 3 Divide 200 by average

$$\begin{array}{r} 13.3 \\ 15 \overline{)200.0} \end{array}$$

Repeat steps 2 and 3 until the divisor matches the dividend.

Average: 13.3 and 15 = 14.15

Divide: 200 ÷ 14.15 = 14.13

Average: 14.15 and 14.13 = 14.14

Divide: 200 ÷ 14.14 = 14.14

Round result: 14.14 ~ 14.1

The square root of 200 is about 14.1.

Directions Use the divide and average method to find the following square roots. Round your answer to the nearest tenth.

1. $\sqrt{256}$

11. $\sqrt{12}$

2. $\sqrt{1225}$

12. $\sqrt{13}$

3. $\sqrt{7}$

13. $\sqrt{14}$

4. $\sqrt{22}$

14. $\sqrt{15}$

5. $\sqrt{26}$

15. $\sqrt{17}$

6. $\sqrt{35}$

16. $\sqrt{19}$

7. $\sqrt{66}$

17. $\sqrt{20}$

8. $\sqrt{18}$

18. $\sqrt{21}$

9. $\sqrt{5}$

19. $\sqrt{99}$

10. $\sqrt{11}$

20. $\sqrt{101}$



Using Electrical Formulas

WIRE			
WATTS (Power)	AMPS (Intensity)	OHMS (Resistance)	VOLTS (Electromotive Force)
$W = EI$	$I = \frac{E}{R}$	$R = \frac{E}{I}$	$E = IR$
$W = I^2R$	$I = \sqrt{\frac{W}{R}}$	$R = \frac{W}{I^2}$	$E = \frac{W}{I}$
$W = \frac{E^2}{R}$	$I = \frac{W}{E}$	$R = \frac{E^2}{W}$	$E = \sqrt{WR}$

EXAMPLE

Lisa Lopez and her apprentice, Carrie Barker, calculate the amount of resistance (R , ohms) in a 12 amp (I), 240 volt (E) circuit. They select the formula for R where I and E are known.

$$R = E \div I = 240 \div 12 = 20$$

$$\begin{array}{r} 20 \\ 12 \overline{)240} \end{array}$$

The resistance is 20 ohms.

Directions Complete the chart below. Use the formulas to calculate the missing information.

	W (in watts)	I (in amps)	R (in ohms)	E (in volts)
1.	15,000 W	5 amps		
2.		15 amps		30 V
3.			14 ohms	70 V
4.		20 amps	300 ohms	
5.	81,000 W			1,800 V



Using Proportions to Find Equivalent Fractions

EXAMPLE

Arnole wanted to find a fraction equivalent to $\frac{2}{3}$ that had a denominator of 27.

Step 1 Write a proportion

Step 2 Solve the proportion

$$2 \times 27 = 54$$

$$54 \div 3 = 18$$

$$? = 18$$

Directions Find equivalent fractions using proportions.

1. $\frac{1}{3} = \frac{?}{54}$

2. $\frac{3}{4} = \frac{?}{24}$

3. $\frac{3}{8} = \frac{15}{?}$

4. $\frac{7}{9} = \frac{21}{?}$

5. $\frac{15}{16} = \frac{?}{64}$

6. $\frac{?}{8} = \frac{60}{96}$

7. $\frac{1}{23} = \frac{10}{?}$

8. $\frac{45}{99} = \frac{?}{11}$

9. $\frac{?}{52} = \frac{3}{4}$

10. $\frac{55}{242} = \frac{?}{22}$

11. $\frac{?}{96} = \frac{1}{2}$

12. $\frac{?}{6} = \frac{12}{72}$

13. $\frac{7}{?} = \frac{85}{120}$

14. $\frac{15}{?} = \frac{45}{48}$

15. $\frac{12}{?} = \frac{60}{70}$

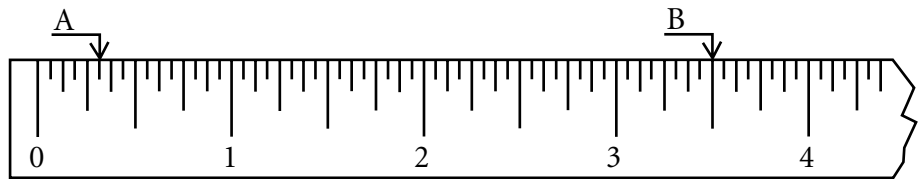


Precise Measurement

EXAMPLE

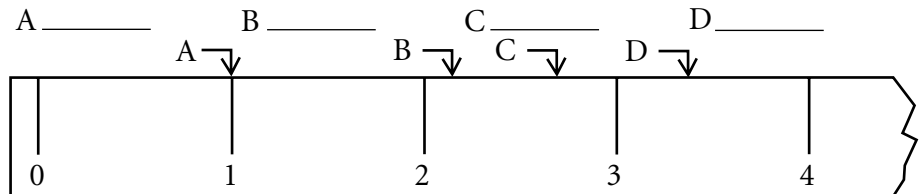
John Sullivan is a carpenter. He reads the measurement at point A as $\frac{5}{16}$ ". He reads point B as $3\frac{8}{16}$ and renames it to $3\frac{1}{2}$ ".

To the nearest sixteenth inch: $3\frac{8}{16} = 3\frac{1}{2}$ "

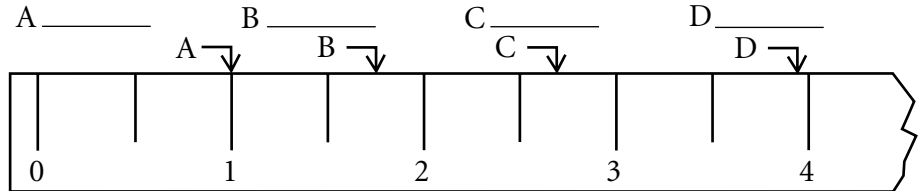


Directions Read points A, B, C, and D on the rulers below.

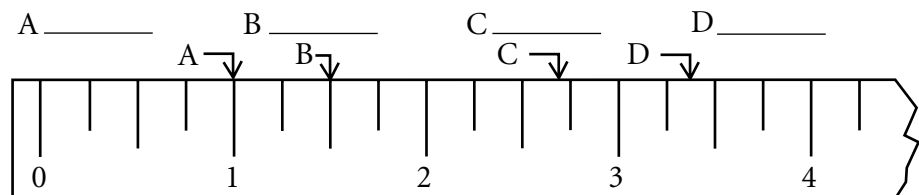
1. To the nearest inch:



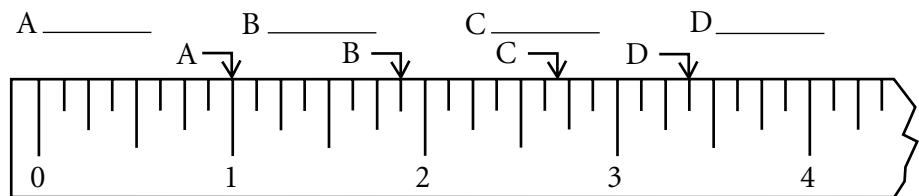
2. To the nearest half inch:



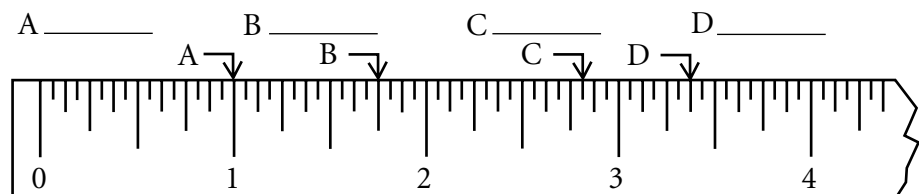
3. To the nearest quarter inch:



4. To the nearest eighth inch:



5. To the nearest sixteenth inch:



Renaming Mixed Numbers

EXAMPLE Rename $3\frac{2}{8}$ as an improper fraction.

$$3 \times 8 + 2 = 26$$

$$3\frac{2}{8} = \frac{26}{8}$$

26 is the new numerator.
Keep 8 as the denominator.

Directions Rename these mixed numbers as improper fractions.

- | | | | |
|----------------------------|-----------------------------|-------------------------------|------------------------------|
| 1. $2\frac{3}{4} =$ _____ | 14. $3\frac{4}{5} =$ _____ | 27. $25\frac{2}{3} =$ _____ | 40. $1\frac{3}{7} =$ _____ |
| 2. $1\frac{1}{2} =$ _____ | 15. $9\frac{4}{9} =$ _____ | 28. $20\frac{2}{3} =$ _____ | 41. $5\frac{5}{6} =$ _____ |
| 3. $1\frac{1}{3} =$ _____ | 16. $7\frac{2}{7} =$ _____ | 29. $11\frac{1}{2} =$ _____ | 42. $13\frac{1}{3} =$ _____ |
| 4. $2\frac{5}{8} =$ _____ | 17. $2\frac{5}{9} =$ _____ | 30. $18\frac{1}{2} =$ _____ | 43. $12\frac{5}{12} =$ _____ |
| 5. $3\frac{2}{3} =$ _____ | 18. $8\frac{1}{8} =$ _____ | 31. $26\frac{1}{2} =$ _____ | 44. $8\frac{1}{5} =$ _____ |
| 6. $5\frac{1}{6} =$ _____ | 19. $10\frac{1}{2} =$ _____ | 32. $18\frac{1}{2} =$ _____ | 45. $20\frac{5}{11} =$ _____ |
| 7. $3\frac{1}{7} =$ _____ | 20. $11\frac{2}{3} =$ _____ | 33. $20\frac{17}{20} =$ _____ | 46. $15\frac{4}{5} =$ _____ |
| 8. $4\frac{2}{3} =$ _____ | 21. $9\frac{1}{3} =$ _____ | 34. $8\frac{5}{12} =$ _____ | 47. $13\frac{2}{3} =$ _____ |
| 9. $6\frac{2}{5} =$ _____ | 22. $16\frac{2}{3} =$ _____ | 35. $5\frac{2}{11} =$ _____ | 48. $8\frac{9}{10} =$ _____ |
| 10. $5\frac{1}{5} =$ _____ | 23. $11\frac{3}{4} =$ _____ | 36. $35\frac{2}{4} =$ _____ | 49. $17\frac{1}{2} =$ _____ |
| 11. $4\frac{5}{6} =$ _____ | 24. $10\frac{1}{4} =$ _____ | 37. $15\frac{2}{3} =$ _____ | 50. $22\frac{3}{4} =$ _____ |
| 12. $4\frac{2}{5} =$ _____ | 25. $8\frac{4}{11} =$ _____ | 38. $32\frac{3}{4} =$ _____ | 51. $12\frac{1}{5} =$ _____ |
| 13. $6\frac{2}{7} =$ _____ | 26. $5\frac{7}{10} =$ _____ | 39. $1\frac{4}{5} =$ _____ | 52. $10\frac{3}{8} =$ _____ |



Machine Operators

EXAMPLE

Freeman is a machine operator who is working with gears. He needs to find the proper proportion for a gear train. The driven gear has 80 teeth requires a speed of 720 rpm. How many teeth should the Driver gear have if it has a speed of 480 RPM?

Step 1 Set up proportion

$$\text{Recall: } \frac{\text{RPM}}{\text{rpm}} = \frac{t}{T}$$

$$\text{RPM} = 480 \quad \text{Speed of Driver gear}$$

$$\text{rpm} = 720 \quad \text{Speed of driven gear}$$

$$t = 80 \quad \text{Teeth on driven gear}$$

$$\frac{480}{720} = \frac{80}{T}$$

Step 2 Solve the proportion

$$\frac{480}{720} = \frac{80}{T}$$

$$\frac{2}{3} = \frac{80}{T}$$

$$T = 80 \times 3 \div 2 = 240 \div 2 = 120$$

Freeman should choose a gear with 120 teeth.

Directions Write the gear proportion. Then find the missing items.
Use mental math wherever possible.

	Teeth in Driver	RPM of Driver	teeth in driven	rpm of driven	Gear Proportion
1.	4	50		20	
2.	40		30	8	
3.		60	28	15	
4.	75	12		100	
5.		20	12	50	
6.	25	100		250	
7.	56	100	70		

