

CHAPTER 2 REVIEW

Questions 1–4 are to be solved without the use of a calculator.

- What is $(2^2)^6$ written with a single exponent?
 - 2^{12}
 - 2^8
 - 2^4
 - 2^3
- The diameter of Saturn measures approximately 5^7 miles. The diameter of Mercury measures approximately 5^5 miles. About how many times greater is the diameter of Saturn than the diameter of Mercury?
 - 2 times greater
 - 5 times greater
 - 10 times greater
 - 25 times greater
- Solve: $n^3 = -64$
 - $n = -8$
 - $n = -4$
 - $n = \pm 4$
 - $n = \pm 8$
- Farzana used square roots and cube roots to write equations equal to 8. Which of the following could **not** be one of Farzana's equations?
 - $\sqrt[3]{125} + \sqrt{9} = 8$
 - $\sqrt{36} - \sqrt[3]{-8} = 8$
 - $\sqrt{16} \cdot \sqrt{4} = 8$
 - $\sqrt{36} \div \sqrt[3]{8} = 8$
- At the time of the 2010 Census, the population of Pennsylvania was approximately 1.27×10^7 and the population of Idaho was about 1.6×10^6 . Which is an accurate comparison of these two populations?
 - The population of Pennsylvania was about 1.25 times greater.
 - The population of Pennsylvania was nearly 8 times greater.
 - The population of Idaho was about 1.25 times greater.
 - The population of Idaho was nearly 8 times greater.

6. Conrad knows that the land area of the United States is approximately 9×10^6 square kilometers. He is traveling to the Philippines to visit his grandmother. He knows that the area of the Philippines is approximately 3×10^5 square kilometers. About how many times greater is the area of the United States than the area of the Philippines?

- A. 3
- B. 30
- C. 300
- D. 3,000

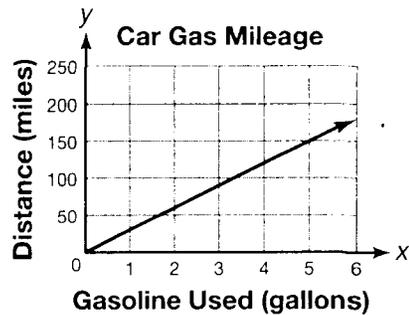
7. Which accurately describes the solution for the system of linear equations below?

$$2y - 2x = -2$$

$$3x + 2y = 8$$

- A. There is no solution.
- B. There are infinitely many solutions.
- C. There is one solution, $(-1, -2)$.
- D. There is one solution, $(2, 1)$.

8. Sharon is comparing the gas mileage for her van with the gas mileage for her new car. The distance, y , her van traveled on x gallons of gasoline was given by the equation $y = 21x$. The graph below shows the gas mileage for her new car.



What is the difference in the gas mileage for the two vehicles?

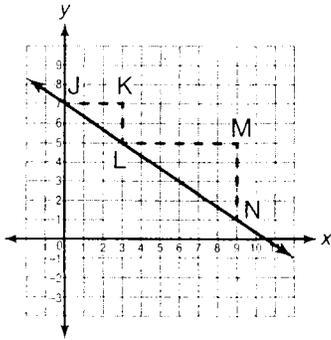
- A. The van traveled 9 more miles per gallon than the car.
- B. The van traveled 5 more miles per gallon than the car.
- C. The car traveled 5 more miles per gallon than the van.
- D. The car traveled 9 more miles per gallon than the van.

9. A nickel has a mass of 5×10^{-3} kilogram. The total mass of 1×10^5 nickels can be found using the expression below.

$$(5 \times 10^{-3}) \times (1 \times 10^5)$$

What is the total mass of 1×10^5 nickels?

- A. 500 kilograms
 B. 50 kilograms
 C. 0.5 kilogram
 D. 0.05 kilogram
10. Line JN and points K , L , and M are shown on the coordinate grid below.



Which statement is **not** true?

- A. The slope of \overrightarrow{JN} is $-\frac{3}{2}$.
 B. Triangle JKL is similar to triangle LMN .
 C. The ratio $\frac{JK}{KL}$ is equivalent to the ratio $\frac{LM}{MN}$.
 D. Line segment LN has the same slope as \overline{JL} .

11. In 2010, the population of Philadelphia was about 1.5×10^6 and the population of Allentown was about 1.2×10^5 . Approximately how many more people lived in Philadelphia than lived in Allentown in 2010?

- A. 1.25×10^1
 B. 1.7×10^1
 C. 1.38×10^6
 D. 1.62×10^6

12. Line k and line l are graphed on the same coordinate grid.

- Line k has a slope of -3 and intersects the y -axis at -2 .
- Line l has a different negative slope than line k and intersects the y -axis below line k .

Which equation could describe line l ?

- A. $y = -\frac{1}{2}x$
 B. $y = -\frac{1}{3}x - 4$
 C. $y = -3x - 5$
 D. $y = 2x - 3$

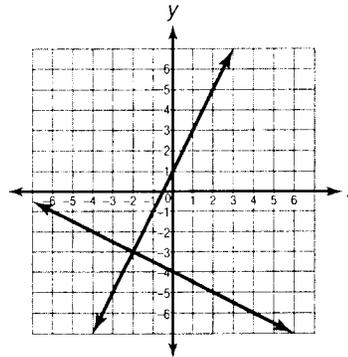
13. If the solution for the equation below is $p = 2$, which number goes in the box?

$$9(p + 4) = 8(p + 6) - \square$$

- A. 46
B. 38
C. 10
D. 0
14. The pep club has raised \$50 so far this year. They are having a car wash to raise more funds and will charge \$7 for each car they wash. Which equation can be used to find y , the total amount of money they will have raised after washing x cars?

- A. $y = 50x - 7$
B. $y = 50x + 7$
C. $y = 7x - 50$
D. $y = 7x + 50$

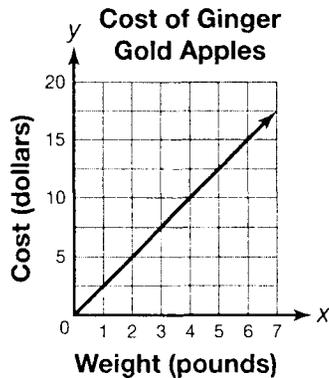
15. What is the solution to the system of equations shown in the graph below?



- A. $(-4, 1)$
B. $(-3, -2)$
C. $(-2, -3)$
D. $(0, 1)$

Use the information and graph below for questions 16 and 17.

The graph shows the cost, y , of buying x pounds of Ginger Gold apples at the farm stand.



16. Which equation describes the graph?
- A. $y = 2.5x$
 - B. $y = 5x$
 - C. $y = x + 2.5$
 - D. $y = x + 5$
17. At the farm stand, Pink Lady apples cost \$0.50 less per pound than Ginger Gold apples. What is the unit price for Pink Lady apples?
- A. \$1.50 per pound
 - B. \$2.00 per pound
 - C. \$3.00 per pound
 - D. \$4.50 per pound

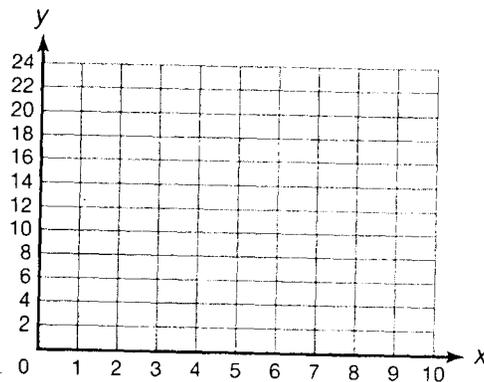
18. Which equation has no solution?

- A. $2x - 3(x + 5) = -x - 15$
 - B. $3(n + 4) = 6(n - 2) - 3n$
 - C. $5k + 3(k - 2) = 6(k - 7)$
 - D. $4(m + 7) = 2(2 - 2m) - 2m$
19. The Meyer family bought 20 tickets at the fair. Each ride ticket cost \$3 and each food ticket cost \$2. If the family spent \$49, how many ride tickets and food tickets did they buy?
- A. 11 ride tickets and 9 food tickets
 - B. 10 ride tickets and 10 food tickets
 - C. 9 ride tickets and 11 food tickets
 - D. 8 ride tickets and 12 food tickets

20. Ms. Diaz wants to park in a lot while she shops in town. Parking Lot A charges a \$3 fee plus \$2 per hour parked. Parking Lot B charges a \$5 fee plus \$1.50 per hour parked.

A. Let x represent the number of hours parked. Let y represent the total cost, in dollars, of parking. Write a system of two linear equations to represent the situation.

B. Graph the system of equations you wrote in Part A. Be sure to label the graph and each axis.



20. **Continued.** Please refer to the previous page for task explanation.

C. What is the solution to the system of equations? Based on the solution, under what conditions should Ms. Diaz choose Lot A? Under what conditions should she choose Lot B?

D. Ms. Diaz learns that there is a third lot, Lot C, that she could use. The equation $y - 2x = 6$ represents y , the cost of parking in Lot C for x hours. Should Ms. Diaz consider this lot under any conditions? Explain.