

EXTRA PRACTICE

1. Which of the following equations is linear?

A) $y = \frac{3}{x}$

B) $\sqrt{x} + y = 0$

C) $\frac{1}{2}x - \frac{5}{8}y = 11$

D) $y = x^2 + 2x - 4$

2. Which of the following does not represent a linear relationship?



A) $y = \frac{x}{5}$

B)

x	y
-4	12
0	2
4	-6
8	2
12	12

C) $x = \frac{9}{7}y + 4$

D) $y = 4x + 7$

3. The local Farmers' Market usually sells potatoes for \$0.90 per pound. On Fridays, they sell potatoes at a 30% discount. The market also sells cantaloupes for \$3.50 each. Which of the following represents the total cost, c , if a customer buys 2 cantaloupes and p pounds of potatoes on a Friday?

A) $c = 0.63p + 7$

B) $c = 0.9p + 7$

C) $c = 0.3p + 3.5$

D) $c = 0.9p + 3.5$

4. If paintbrushes cost \$1.50 each and canvases cost 6 times that much, which of the following represents the cost, in dollars, of p paintbrushes and c canvases?

A) $7.5pc$

B) $10.5pc$

C) $9c + 1.5p$

D) $10.5(p + c)$

5. In states that produce natural gas, the state government typically imposes two types of taxes on producers: a local impact fee, which is a flat tax paid per well drilled, and a severance tax, which is based on the market value of the total volume of gas extracted, v . If a producer's total bill for one well is given by the equation $T = 0.004v + 50,000$, then the value 0.004 could represent which of the following?

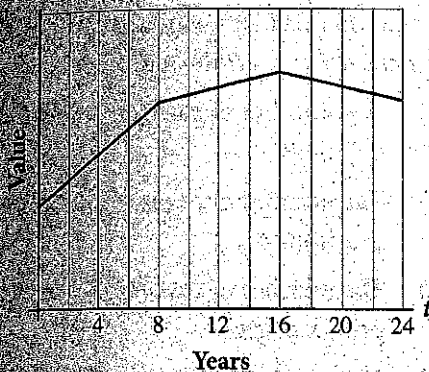
A) The local impact fee

B) The market value of the gas extracted

C) The total tax bill minus the local impact fee

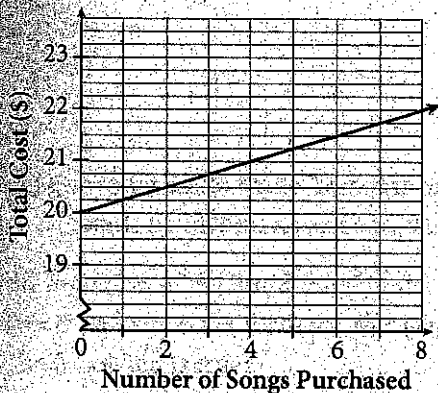
D) The amount of the severance tax as a percentage

Expected Property Values
2014-2028



A realtor is studying the figure above, which shows the expected value of properties in her area over the next 24 years. If t represents the number of years after 2014, in what year should the increase in property values start to slow down?

- A) 2008
- B) 2018
- C) 2022
- D) 2030



The figure above shows the cost of joining and buying music from a music subscription service. What does the y -intercept of the line most likely represent?

- A) The cost per song
- B) The cost to join the service
- C) The cost of buying 20 songs
- D) The cost of 20 subscriptions to the service

8. A store "breaks even" when its sales equal its expenses. Jon has just opened a new surfboard store at the beach. He buys each surfboard wholesale for \$80 and has fixed monthly expenses of \$3,600. He sells each surfboard for \$120. How many surfboards does Jon need to sell in a month to break even?

- A) 18
- B) 30
- C) 45
- D) 90

9. Which value of x makes the equation

$$\frac{8}{5}\left(x + \frac{33}{12}\right) = 16$$
 true?


- A) 7.25
- B) 8.75
- C) 12.75
- D) 13.25


$$\frac{3(n-2)+5}{4} = \frac{11-(7-n)}{6}$$

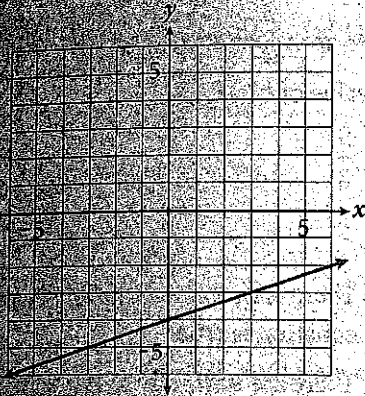
10. In the equation above, what is the value of n ?

- A) $\frac{1}{11}$
- B) $\frac{5}{11}$
- C) 1
- D) $\frac{11}{7}$

Price of One Pound	Projected Number of Pounds Sold
\$1.20	15,000
\$1.40	12,500
\$1.60	10,000
\$1.80	7,500
\$2.00	5,000
\$2.20	2,500

11. Which of the following equations best describes the linear relationship shown in the table above, where g represents the number of pounds of grain sold and d represents the price in dollars of one pound of grain?
-  A) $g = 1.2d + 12,500$
 B) $g = 12,500d + 15,000$
 C) $g = -12,500d + 17,500$
 D) $g = -12,500d + 30,000$
12. Henry just set up direct deposit from his employer to his checking account. The equation $y = 360x - 126.13$ represents the balance in Henry's account if he deposits his weekly paycheck for x weeks. Based on this equation, which of the following statements is true?
- A) Henry earns \$126.13 per week.
 B) Henry made an initial deposit of \$126.13.
 C) Before setting up the direct deposit, Henry had overdrawn his account.
 D) When Henry set up the direct deposit, he already had \$360 in his account.

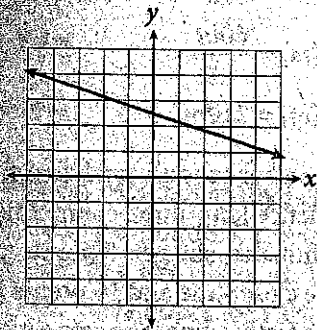
13. A printing press running around the clock can print 54,000 black and white pages per day. Based on this information, what could the function $f(x) = 2,250x$ represent?
- A) The number of pages the press can print in x days
 B) The number of pages the press can print in x hours
 C) The number of days it takes the press to print x pages
 D) The number of hours it takes the press to print x pages
14. Nadim is hosting a party and is hiring a catering company to make and serve the food. The caterer charges a flat fee for serving the food plus a per person rate for the meals. If the equation used to calculate the total cost of Nadim's party is $y = 11x + 300$, then which of the following most likely represents the number of people attending the party?
- A) x
 B) y
 C) 11
 D) 300
15. The graph of which of the following linear equations has an undefined slope?
-  A) $x = 3$
 B) $y = 0$
 C) $x = -y$
 D) $x - y = 0$



16. The figure above represents which of the following equations?

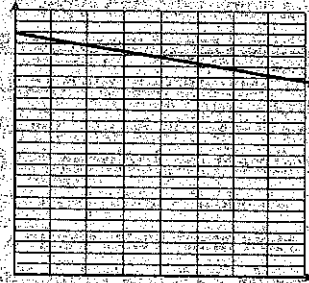


- A) $y = -3x + 4$
- B) $y = \frac{1}{3}x + 4$
- C) $y = \frac{1}{3}x - 4$
- D) $y = 3x - 4$



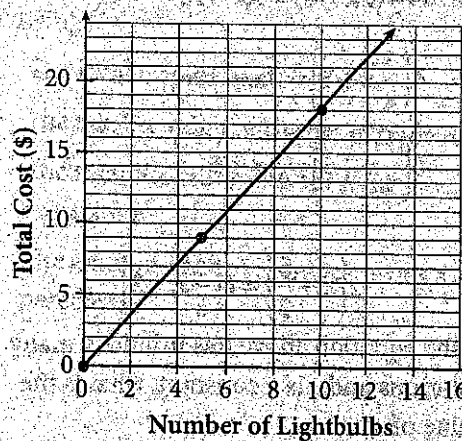
17. If the equation of the line shown in the figure above is written in the form $y = mx + b$, which of the following is true?

- A) $m < 0$ and $b < 0$
- B) $m < 0$ and $b > 0$
- C) $m > 0$ and $b < 0$
- D) $m > 0$ and $b > 0$



18. Which of the following scenarios could be supported by the graph above?

- A) As the algae content in a lake increases, the number of fish decreases.
- B) As the algae content in a lake decreases, the number of fish decreases.
- C) As the algae content in a lake increases, the number of fish increases.
- D) As the algae content in a lake increases, the number of fish remains constant.



19. A hardware store sells lightbulbs in different quantities. The figure above shows the cost of various quantities. According to the figure, what is the cost of a single lightbulb?



- A) \$0.56
- B) \$1.80
- C) \$2.50
- D) \$3.60

20. A laser tag arena sells two types of memberships. One package costs \$325 for one year of membership with an unlimited number of visits. The second package has a \$125 enrollment fee, includes five free visits, and costs an additional \$8 per visit after the first five. How many visits would a person need to use for each type of membership to cost the same amount over a one-year period?



- A) 20
- B) 25
- C) 30
- D) 40

21. Which of the equations below has no solution?

- A) $\frac{3}{8}(x-2) = \frac{8}{3}(x+2)$
- B) $-\frac{3}{2}(2x-8) = 3x-12$
- C) $4\left(\frac{3}{4}x+5\right) = 3x+20$
- D) $6\left(\frac{2}{3}x+5\right) = 4x+5$

$$2\left(x - \frac{5}{2}\right) = c\left(\frac{4}{5}x - 2\right)$$

22. If the equation above has infinitely many solutions and c is a constant, what is the value of c ?

- A) -2
- B) $-\frac{4}{5}$
- C) $\frac{5}{4}$
- D) $\frac{5}{2}$

23. If $\frac{1}{4}(10h) - \frac{3}{2}(h+1) = -\frac{2}{3}\left(\frac{9}{2}h\right) + 6$, what is the value of h ?



- A) $\frac{9}{8}$
- B) $\frac{15}{8}$
- C) There is no value of h for which the equation is true.
- D) There are infinitely many values of h for which the equation is true.

24. A cell phone tower has a safety light to warn airplanes of its location. It blinks once every 3.5 seconds. If $f(m)$ gives the number of times the light blinks over the course of m minutes, which of the following equations defines f ?



- A) $f(m) = 2.5m$
- B) $f(m) = \frac{3.5m}{60}$
- C) $f(m) = \frac{60m}{3.5}$
- D) $f(m) = 210m$

25. Vera is on her school's track and field team. In a practice long-jump competition against her teammates, she gets 5 points for landing over the closer line and 10 points for landing over the farther line. She gets a total of 7 jumps and lands x times over the farther line and the rest of the times over the closer line. Which of the following functions represents Vera's total score?

- A) $f(x) = 10x$
- B) $f(x) = 5x + 35$
- C) $f(x) = 10x + 5$
- D) $f(x) = 70 - 5x$

