

Equations

- 31** Airline passengers pay \$439 to fly to California. For this price, customers may check 2 pieces of luggage. There is a fee of \$25 for each additional piece of luggage a passenger wants to check. Which function can be used to find the amount in dollars a passenger has to pay to fly with p pieces of luggage, where $p \geq 2$?

A $c = 25p + 439$

B $c = 25(p - 2) + 439$

C $c = \frac{p}{25} + 439$

D $c = \frac{p - 2}{25} + 439$

- 10** A city employee paints curbs in parking lots and replaces road signs. It takes 0.5 hour to paint a parking lot curb and 2.5 hours to replace a road sign. The function below can be used to find c , the number of parking lot curbs the employee paints when he replaces r road signs in a 40-hour workweek.

$$c = \frac{40 - 2.5r}{0.5}$$

If the employee painted 20 curbs in one week, how many road signs did he replace that week?

F 20

G 30

H 0

J 12

Equations

23 What is the equation in standard form of the line that passes through the point $(4, -8)$ and has a slope of $\frac{1}{4}$?

A $x - 4y = 36$

B $x - 4y = 28$

C $x - 4y = -36$

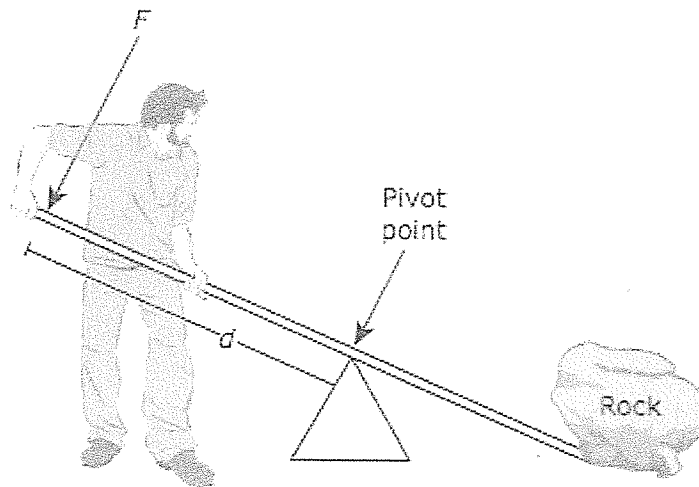
D $x - 4y = -28$

14 A senior employee who works 16 hours earns \$39.50 more than a junior employee who works 18 hours. The senior employee earns \$14 per hour. What is the hourly pay in dollars and cents for the junior employee?

Record your answer and fill in the bubbles on your answer document.

Equations

- 18 A farmer uses a lever to move a large rock. The force required to move the rock varies inversely with the distance from the pivot point to the point the force is applied. A force of 50 pounds applied to the lever 36 inches from the pivot point of the lever will move the rock. Which function models the relationship between F , the amount of force applied to the lever, and d , the distance of the applied force from the pivot point?



F $d = \frac{F}{1,800}$

G $d = \frac{86}{F}$

H $F = \frac{1,800}{d}$

J $F = \frac{d}{86}$

- 42 If $f(x) = \frac{2}{3}x^2 + 8x$, what is the value of $f(6)$?

Record your answer and fill in the bubbles on your answer document.

Equations

- 48 What is the equation of the line that has a slope of 0 and passes through the point $(6, -8)$?
- F $x = 6$
 - G $y = 6$
 - H $x = -8$
 - J $y = -8$
- 1 . Which situation can be represented by $y = 12x - 4$?
- A The number of eggs, y , in x dozen eggs for sale after 4 dozen eggs are sold
 - B The cost, y , of buying x movie tickets that sell for \$8 each
 - C The cost, y , after a \$4 discount, of buying x T-shirts that sell for \$12 each
 - D The number of inches, y , in an x -foot-tall tree after cutting off 4 feet

Equations

43 Two functions are given below.

$$p(x) = \frac{5}{8}x - \frac{3}{11}$$

$$q(x) = \frac{8}{5}x - \frac{3}{11}$$

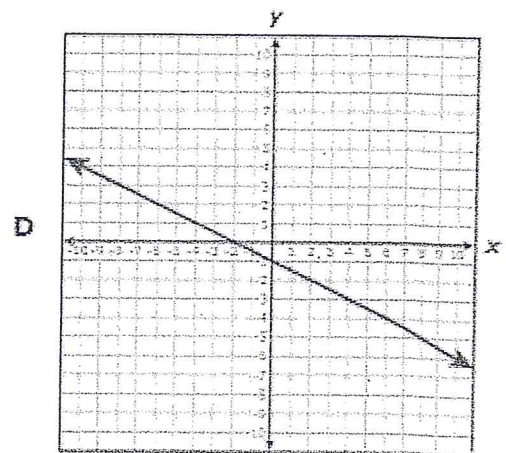
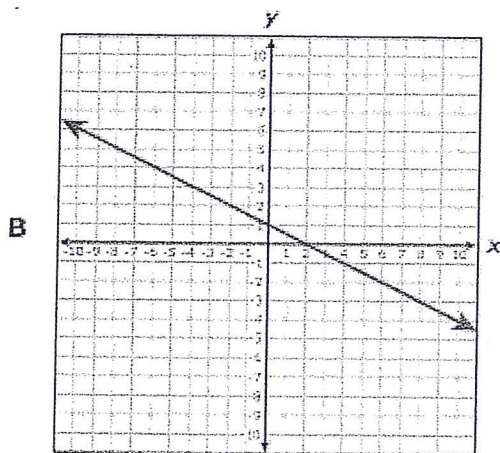
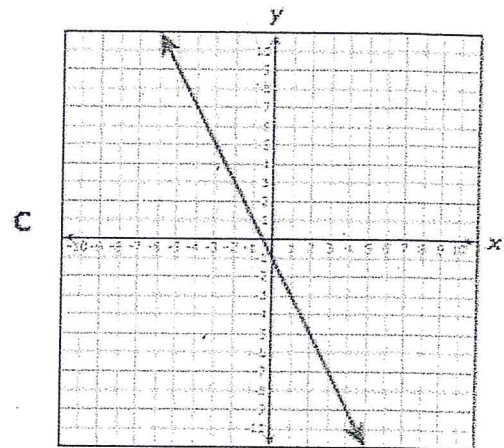
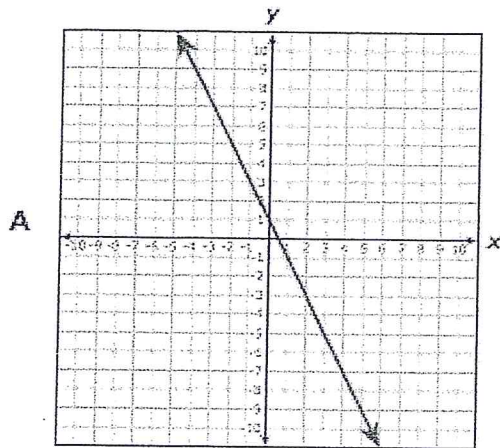
How does the graph of p compare with the graph of q ?

- A The graph of p has a different y -intercept than the graph of q .
 - B The graph of p is less steep than the graph of q .
 - C The graph of p is steeper than the graph of q .
 - D The graph of p is parallel to the graph of q .
- 42 The cost of parking in the garage at the airport is \$16 per day. A separate parking facility outside the airport charges 25% less per day to park. What would be the savings in dollars and cents of parking for 6 days in the facility outside the airport instead of in the airport garage?

Record your answer and fill in the bubbles on your answer document.

Equations

- 45 The slope and y -intercept of the line represented by $y = \frac{2}{5}x + \frac{3}{15}$ are both divided by $-\frac{1}{5}$ to create a new line. Which graph represents the new line?



- 9 One type of redwood tree has an average height of 65 feet when it is 20 years old. If the tree is more than 20 years old, the average height, h , can be modeled by the function $h = 1.95(a - 20) + 65$, where a is the age of the tree in years. Which statement about this situation is true?
- A Every additional 1.95 ft of length over 20 ft adds 45 years to the age of this type of redwood tree.
 - B For this type of redwood tree, the average height increases by 1.95 ft per year throughout its lifetime.
 - C Each additional year of age over 20 years adds 1.95 ft to the average height of this type of redwood tree.
 - D For this type of redwood tree, the average height increases by 65 ft for every 20 years of growth.

4 The function $y = 6 + 1.25x$ can be used to find the cost of joining an online music club and buying x songs from the website. Based on this information, which statement about the graph of this situation is true?

F The y -intercept of the graph represents the cost of each song.

G The y -intercept of the graph represents the cost of joining the music club.

H The slope of the graph represents the total number of songs bought by members of the club.

J The slope of the graph represents the number of songs each member buys when visiting the website.

18 A scientist needs to print a research report on her computer's printer. If she prints in black ink only, $b(t) = 152 - 33t$ describes the number of pages left to print after t minutes. If she prints in colored ink, $c(t) = 152 - 30t$ describes the number of pages left to print after t minutes. Based on this information, which statement is true?

F The printer prints 3 more pages per minute in colored ink than in black ink.

G The printer prints 3 fewer pages per minute in colored ink than in black ink.

H The printer prints the same number of pages per minute in either type of ink.

J The printer prints the entire research report in 152 minutes.

24 An airplane's altitude in feet during its descent for landing can be found using the function $f(x) = -300x + 30,000$, where x represents the horizontal distance in miles from where the plane begins its descent. After new government regulations become law, the airplane's descent will be modeled by the function $g(x) = -300x + 30,500$. Which statement describes this change?

F The airplane starts its descent from an altitude 500 feet higher.

G The airplane starts its descent from an altitude 500 feet lower.

H The airplane descends 500 feet per horizontal mile faster.

J The airplane descends 500 feet per horizontal mile slower.

54 If the graph of $y = 9x + 4$ is translated 4 units up, which equation describes the new graph?

F $y = 9x + 8$

G $y = 13x + 4$

H $y = 13x + 8$

J $y = 4x + 4$

- 14 A student bought concert tickets online. The total cost, c , in dollars, of t tickets can be found using the function below.

$$c = 24.50t + 9.50$$

If the student spent a total of \$83 on tickets, how many tickets did he buy?

Record your answer and fill in the bubbles on your answer document.

- 32 An online music service lets customers download an unlimited number of songs for \$0.25 each after paying a monthly membership fee of \$5.00. The total amount of money a customer spends on music in dollars in a single month can be found using the function $y = 0.25x + 5$. What does the variable x represent in this function?
- F The total amount of money the customer spends on music each month
 - G The number of songs the customer downloads each month
 - H The number of customers that use the music service
 - J The cost of downloading one song