Question ID 43e69f94

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 43e69f94

The cost of renting a backhoe for up to 10 days is $\$270$ for the first day and $\$135$ for each additional day. Which of the following equations gives the cost y, in dollars, of renting the backhoe for x days, where x is a positive integer and $x \leq 10$?

A. $y = 270x - 135$

B. $y = 270x + 135$

C. $y = 135x + 270$

D. $y = 135x + 135$

Question ID a3f57d54

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: a3f57d54

The equation $h = \frac{9(v-273.15)}{5} + 32$ gives the corresponding temperature h, in degrees Fahrenheit, of any substance that has a temperature of v kelvins, where $v > 0$. If a substance has a temperature of 467.33 degrees Fahrenheit, what is the corresponding temperature, in kelvins, of this substance?

Question ID c5526332

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: c5526332

x	$f(x)$
1	-64
2	0
3	64

For the linear function f, the table shows three values of x and their corresponding values of $f(x)$. Function f is defined by $f(x) = ax + b$, where a and b are constants. What is the value of $a - b$?

A. -64

B. 62

C. 128

D. 192

Question ID 83a38c31

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 83a38c31

The function $f(x)$ is defined as 19 more than 4 times a number x. If $y = f(x)$ is graphed in the xy-plane, what is the best interpretation of the x-intercept?

A. When $f(x) = 0$, the number is $-\frac{19}{4}$.

B. When the number is 0, $f(x) = 19$.

C. The value of $f(x)$ increases by 1 for each increase of 4 in the value of the number.

D. For each increase of 1 in the value of the number, $f(x)$ increases by 4.

Question ID 5cd676da

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

The cost of renting a carpet cleaner is $\$52$ for the first day and $\$26$ for each additional day. Which of the following functions gives the cost $C(d)$, in dollars, of renting the carpet cleaner for d days, where d is a positive integer?

A. $C(d) = 26d + 26$

B. $C(d) = 26d + 52$

C. $C(d) = 52d - 26$

D. $C(d) = 52d + 78$

Question ID 10df349c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

One gallon of stain will cover 170 square feet of a surface. A yard has a total fence area of w square feet. Which equation represents the total amount of stain S, in gallons, needed to stain the fence in this yard twice?

A. $S = \frac{w}{170}$

B. $S = 170w$

C. $S = 340w$

D. $S = \frac{w}{85}$

Question ID 68e48b4c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 68e48b4c

For the function f, $f(cx) = x - 8$ for all values of x, where c is a positive constant. If $f(2) = 35$, what is the value of c ?

Question ID 7a83c8d8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 7a83c8d8

Kaylani used fabric measuring 5 yards in length to make each suit for a men's choir. The relationship between the number of suits that Kaylani made, x, and the total length of fabric that she purchased y, in yards, is represented by the equation $y - 5x = 6$. What is the best interpretation of 6 in this context?

A. Kaylani made 6 suits.

B. Kaylani purchased a total of 6 yards of fabric.

C. Kaylani used a total of 6 yards of fabric to make the suits.

D. Kaylani purchased 6 yards more fabric than she used to make the suits.

Question ID 652119ce

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

The functions f and g are defined as $f(x) = \frac{1}{4}x - 9$ and $g(x) = \frac{3}{4}x + 21$. If the function h is defined as $h(x) = f(x) + g(x)$, what is the x-coordinate of the x-intercept of the graph of $y = h(x)$ in the xy-plane?

Question ID e1f59a4d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: e1f59a4d

One gallon of paint will cover 220 square feet of a surface. A room has a total wall area of w square feet. Which equation represents the total amount of paint P, in gallons, needed to paint the walls of the room twice?

A. $P = \frac{w}{110}$

B. $P = 440w$

C. $P = \frac{w}{220}$

D. $P = 220w$

Question ID 4b0b4e54

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 4b0b4e54

$$F(x) = \frac{9}{5}(x - 273.15) + 32$$

The function F gives the temperature, in degrees Fahrenheit, that corresponds to a temperature of x kelvins. If a temperature increased by 2.10 kelvins, by how much did the temperature increase, in degrees Fahrenheit?

A. 3.78

B. 35.78

C. 487.89

D. 519.89

Question ID 9ecfa82d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

The linear function g is defined by $g(x) = b - 15x$, where b is a constant. If $g(c + 7) = \frac{c}{4}$, where c is a constant, which of the following expressions represents the value of b?

A. $\frac{15c}{4}$

B. $\frac{19c}{4} + 7$

C. $\frac{61c}{4} + 105$

D. $15c + 105$

Question ID 84877fd5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 84877fd5

For groups of 25 or more people, a museum charges $\$21$ per person for the first 25 people and $\$14$ for each additional person. Which function f gives the total charge, in dollars, for a tour group with n people, where $n \geq 25$?

A. $f(n) = 14n + 175$

B. $f(n) = 14n + 525$

C. $f(n) = 35n - 350$

D. $f(n) = 14n + 21$

Question ID 50821477

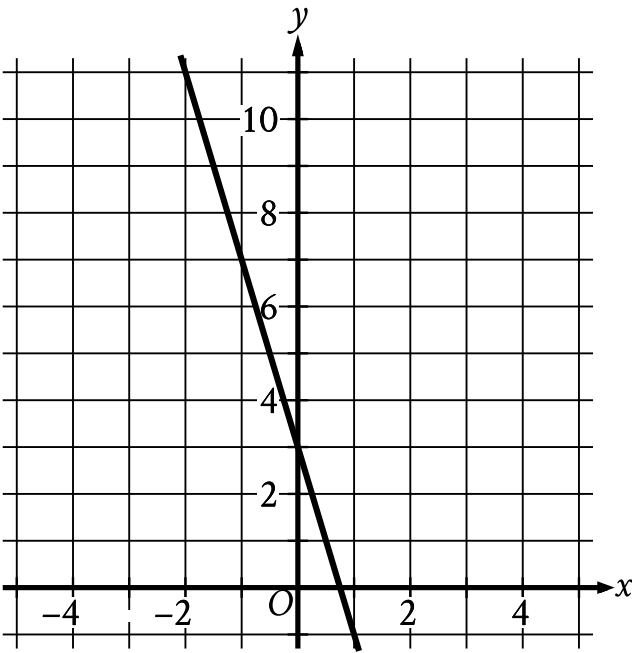| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: 50821477

A window repair specialist charges $\$220$ for the first two hours of repair plus an hourly fee for each additional hour. The total cost for 5 hours of repair is $\$400$. Which function f gives the total cost, in dollars, for x hours of repair, where $x \geq 2$?

A. $f(x) = 60x + 100$

B. $f(x) = 60x + 220$

C. $f(x) = 80x$

D. $f(x) = 80x + 220$

Question ID b2f892c3

ID: b2f892c3

The graph of the linear function $y = f(x) + 19$ is shown. If c and d are positive constants, which equation could define f?

A. $f(x) = -d - cx$

B. $f(x) = d - cx$

C. $f(x) = -d + cx$

D. $f(x) = d + cx$

Question ID c96a90a2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

ID: c96a90a2

The cost of renting a large canopy tent for up to 10 days is $\$430$ for the first day and $\$215$ for each additional day. Which of the following equations gives the cost y, in dollars, of renting the tent for x days, where x is a positive integer and $x \leq 10$?

A. $y = 215x + 215$

B. $y = 430x - 215$

C. $y = 430x + 215$

D. $y = 215x + 430$

Question ID 6285cfe8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

$$F(x) = \tfrac{9}{5}(x - 273.15) + 32$$

The function F gives the temperature, in degrees Fahrenheit, that corresponds to a temperature of x kelvins. If a temperature increased by 9.10 kelvins, by how much did the temperature increase, in degrees Fahrenheit?

A. 16.38

B. 48.38

C. 475.29

D. 507.29

Question ID 60199720

ID: 60199720

x	$f(x)$
-4	0
$-\frac{19}{5}$	1
$-\frac{18}{5}$	2

For the linear function f, the table shows three values of x and their corresponding values of $f(x)$. If $h(x) = f(x) - 13$, which equation defines h?

A. $h(x) = 5x - 4$

B. $h(x) = 5x + 7$

C. $h(x) = 5x + 9$

D. $h(x) = 5x + 20$

Question ID e6ec10f1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	Hard

x	y
-12	-45
6	45

The table shows two values of x and their corresponding values of y. The graph of the linear equation representing this relationship passes through the point $\left(\frac{1}{4}, a\right)$. What is the value of a?