SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.1 3cdbf026

The graph of the equation $ax + ky = 6$ is a line in the *xy*-plane, where *a* and *k* are constants. If the line contains the points $(-2, -6)$ and $(0, -3)$, what is the value of *k* ?

A. -2

B. -1

C. 2

D. 3

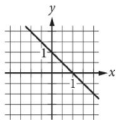
3.2 fdee0fbf

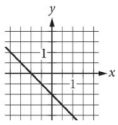
In the *xy*-plane, line *k* intersects the *y*-axis at the point $(0, -6)$ and passes through the point $(2, 2)$. If the point $(20, w)$ lies on line *k*, what is the value of *w* ?

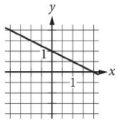
3.3 0b46bad5

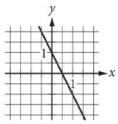
$$ax + by = b$$

In the equation above, *a* and *b* are constants and $0 < a < b$. Which of the following could represent the graph of the equation in the *xy*-plane?

A. 

B. 

C. 

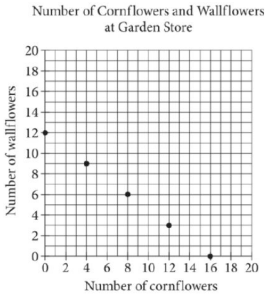
D. 

SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.4 c362c210



The points plotted in the coordinate plane above represent the possible numbers of wallflowers and cornflowers that someone can buy at the Garden Store in order to spend exactly $24.00 total on the two types of flowers. The price of each wallflower is the same and the price of each cornflower is the same. What is the price, in dollars, of 1 cornflower?

3.5 98d3393a

Line ℓ in the *xy*-plane is perpendicular to the line with equation $x = 2$. What is the slope of line ℓ?

A. 0

B. $-\frac{1}{2}$

C. -2

D. The slope of line ℓ is undefined.

3.6 0366d965

x	y
3	7
k	11
12	n

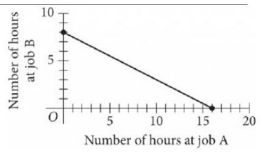
The table above shows the coordinates of three points on a line in the *xy*-plane, where k and n are constants. If the slope of the line is 2, what is the value of $k + n$?

SAT Math

Linear Equations in Two Variables 3

Question #	ID

3.7 c4ea43ef



To earn money for college, Avery works two part-time jobs: A and B. She earns $10 per hour working at job A and $20 per hour working at job B. In one week, Avery earned a total of *s* dollars for working at the two part-time jobs. The graph above represents all possible combinations of numbers of hours Avery could have worked at the two jobs to earn *s* dollars. What is the value of *s* ?

A. 128

B. 160

C. 200

D. 320

3.8 cb58833c

The line with the equation $\frac{4}{5}x+\frac{1}{3}y=1$ is graphed in the *xy*-plane. What is the *x*-coordinate of the *x*-intercept of the line?

3.9 a7a14e87

In the *xy*-plane, line *k* is defined by $x+y=0$. Line *j* is perpendicular to line *k*, and the *y*-intercept of line *j* is $(0,3)$. Which of the following is an equation of line *j* ?

A. $x+y=3$

B. $x+y=-3$

C. $x-y=3$

D. $x-y=-3$

3.10 a1fd2304

How many liters of a 25% saline solution must be added to 3 liters of a 10% saline solution to obtain a 15% saline solution?

SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.11 49800634

x	y
-18	-48
7	52

The table shows two values of x and their corresponding values of y. In the *xy*-plane, the graph of the linear equation representing this relationship passes through the point $\left(\frac{1}{7},\ a\right)$. What is the value of a?

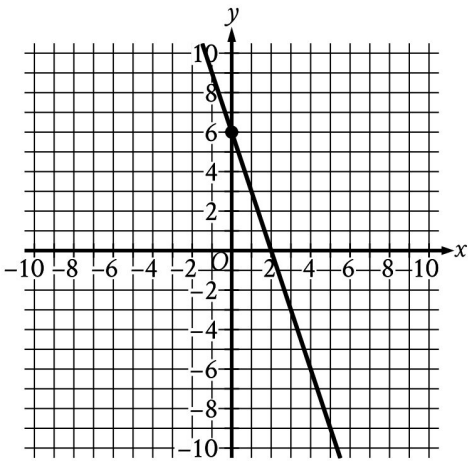
A. $-\frac{4}{11}$

B. $-\frac{4}{77}$

C. $\frac{4}{7}$

D. $\frac{172}{7}$

3.12 5b7599a6



The graph shows a linear relationship between x and y. Which equation represents this relationship, where R is a positive constant?

A. $Rx + 18y = 36$

B. $Rx - 18y = -36$

C. $18x + Ry = 36$

D. $18x - Ry = -36$

SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.13 184ce5aa

Line h is defined by $\frac{1}{5}x + \frac{1}{7}y - 70 = 0$. Line j is perpendicular to line h in the *xy*-plane. What is the slope of line j?

A. $-\frac{7}{5}$

B. $-\frac{5}{7}$

C. $\frac{7}{5}$

D. $\frac{5}{7}$

3.14 d0e614a6

$\frac{3}{5}x + \frac{3}{4}y = 7$ Which table gives three values of x and their corresponding values of y for the given equation?

A.

x	y
1	$\frac{113}{20}$
2	$\frac{101}{20}$
4	$\frac{77}{20}$

B.

x	y
1	$\frac{47}{5}$
2	$\frac{44}{5}$
4	$\frac{38}{5}$

C.

x	y
1	$\frac{148}{15}$
2	$\frac{136}{15}$
4	$\frac{112}{15}$

D.

x	y
1	$\frac{128}{15}$
2	$\frac{116}{15}$
4	$\frac{92}{15}$

SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.15 9bbce683

x	y
18	130
23	160
26	178

For line h, the table shows three values of x and their corresponding values of y. Line k is the result of translating line h down 5 units in the *xy*-plane. What is the *x*-intercept of line k?

A. $\left(-\frac{26}{3}, 0\right)$

B. $\left(-\frac{9}{2}, 0\right)$

C. $\left(-\frac{11}{3}, 0\right)$

D. $\left(-\frac{17}{6}, 0\right)$

3.16 2d54c272

$$5G + 45R = 380$$

At a school fair, students can win colored tokens that are worth a different number of points depending on the color. One student won G green tokens and R red tokens worth a total of 380 points. The given equation represents this situation. How many more points is a red token worth than a green token?

3.17 b9835972

In the *xy*-plane, line ℓ passes through the point $(0, 0)$ and is parallel to the line represented by the equation $y = 8x + 2$. If line ℓ also passes through the point $(3, d)$, what is the value of d?

3.18 94b48cbf

The graph of $7x + 2y = -31$ in the xy-plane has an x-intercept at $(a, 0)$ and a y-intercept at $(0, b)$, where a and b are constants. What is the value of $\frac{b}{a}$?

A. $-\frac{7}{2}$

B. $-\frac{2}{7}$

C. $\frac{2}{7}$

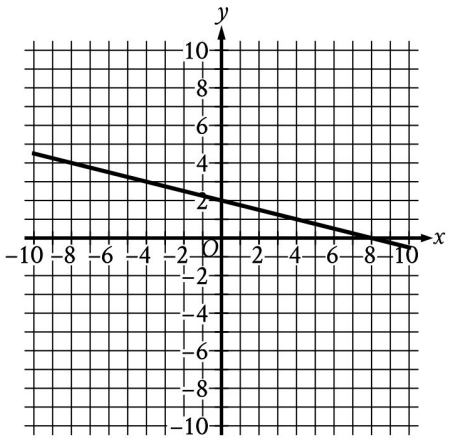
D. $\frac{7}{2}$

SAT Math

Linear Equations in Two Variables 3

Question # **ID**

3.19 05bb1af9



The graph of $y = f(x) + 14$ is shown. Which equation defines function f?

A. $f(x) = -\frac{1}{4}x - 12$

B. $f(x) = -\frac{1}{4}x + 16$

C. $f(x) = -\frac{1}{4}x + 2$

D. $f(x) = -\frac{1}{4}x - 14$

3.20 abcd0004

$$2x + 3y = 7$$
$$10x + 15y = 35$$

For each real number r, which of the following points lies on the graph of each equation in the xy-plane for the given system?

(A) $\left(\frac{r}{5} + 7, -\frac{r}{5} + 35\right)$

(B) $\left(-\frac{3r}{2} + \frac{7}{2}, r\right)$

(C) $\left(r, \frac{2r}{3} + \frac{7}{3}\right)$

(D) $\left(r, -\frac{3r}{2} + \frac{7}{2}\right)$

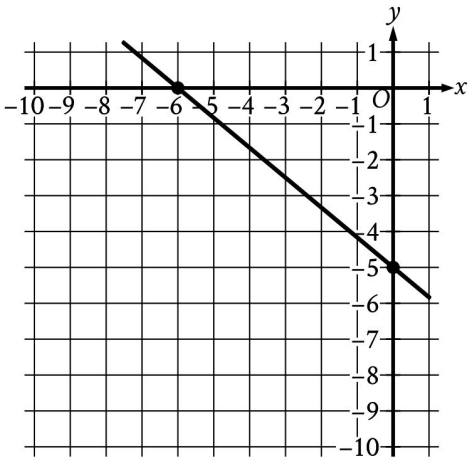
3.21 db422e7f

Line p is defined by $4y + 8x = 6$. Line r is perpendicular to line p in the xy-plane. What is the slope of line r?

SAT Math

Linear Equations in Two Variables 3

Question #	ID
3.22	6d8ad460



Line k is shown in the *xy*-plane. Line j (not shown) is perpendicular to line k. What is the slope of line j?