Question Bank
Math

Visit mocksatexam.online to download more free question banks

Linear Equations in Two Variables

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ □ □

ID: ee846db7

A store sells two different-sized containers of a certain Greek yogurt. The store's sales of this Greek yogurt totaled $1{,}277.94$ dollars last month. The equation $5.48x + 7.30y = 1{,}277.94$ represents this situation, where x is the number of smaller containers sold and y is the number of larger containers sold. According to the equation, which of the following represents the price, in dollars, of each smaller container?

A. 5.48

B. $7.30y$

C. 7.30

D. $5.48x$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 5b8a8475

Line k is defined by $y = 3x + 15$. Line j is perpendicular to line k in the xy-plane. What is the slope of line j?

A. $-\frac{1}{3}$

B. $-\frac{1}{12}$

C. $-\frac{1}{18}$

D. $-\frac{1}{45}$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: b23bba4c

$$3a + 4b = 25$$

A shipping company charged a customer $25 to ship some small boxes and some large boxes. The equation above represents the relationship between *a*, the number of small boxes, and *b*, the number of large boxes, the customer had shipped. If the customer had 3 small boxes shipped, how many large boxes were shipped?

A. 3

B. 4

C. 5

D. 6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 87322577

$x+y=75$

The equation above relates the number of minutes, *x*, Maria spends running each day and the number of minutes, *y*, she spends biking each day. In the equation, what does the number 75 represent?

A. The number of minutes spent running each day

B. The number of minutes spent biking each day

C. The total number of minutes spent running and biking each day

D. The number of minutes spent biking for each minute spent running

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: c6b151d4

A total of 364 paper straws of equal length were used to construct two types of polygons: triangles and rectangles. The triangles and rectangles were constructed so that no two polygons had a common side. The equation $3x + 4y = 364$ represents this situation, where x is the number of triangles constructed and y is the number of rectangles constructed. What is the best interpretation of $(x, y) = (24, 73)$ in this context?

A. If 24 triangles were constructed, then 73 rectangles were constructed.

B. If 24 triangles were constructed, then 73 paper straws were used.

C. If 73 triangles were constructed, then 24 rectangles were constructed.

D. If 73 triangles were constructed, then 24 paper straws were used.

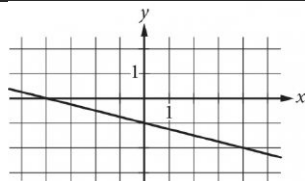| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 8c98c834

The equation $y = 0.1x$ models the relationship between the number of different pieces of music a certain pianist practices, y, during an x-minute practice session. How many pieces did the pianist practice if the session lasted 30 minutes?

A. 1

B. 3

C. 10

D. 30

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: b2845d88

Which of the following is an equation of the graph shown in the *xy*-plane above?

A. $y = -\dfrac{1}{4}x - 1$

B. $y = -x - 4$

C. $y = -x - \dfrac{1}{4}$

D. $y = -4x - 1$

| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: b450ab03

An employee at a restaurant prepares sandwiches and salads. It takes the employee 1.5 minutes to prepare a sandwich and 1.9 minutes to prepare a salad. The employee spends a total of 46.1 minutes preparing x sandwiches and y salads. Which equation represents this situation?

A. $1.9x + 1.5y = 46.1$

B. $1.5x + 1.9y = 46.1$

C. $x + y = 46.1$

D. $30.7x + 24.3y = 46.1$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 8368afd1
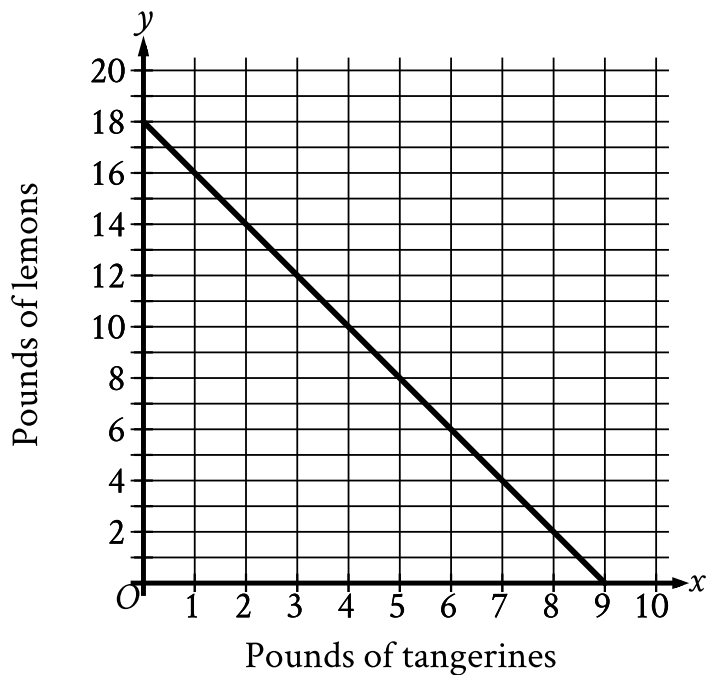
The graph shows the possible combinations of the number of pounds of tangerines and lemons that could be purchased for $18 at a certain store. If Melvin purchased lemons and 4 pounds of tangerines for a total of $18, how many pounds of lemons did he purchase?

A. 7

B. 10

C. 14

D. 16

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 8adf1335

A city's total expense budget for one year was x million dollars. The city budgeted y million dollars for departmental expenses and 201 million dollars for all other expenses. Which of the following represents the relationship between x and y in this context?

A. $x + y = 201$

B. $x - y = 201$

C. $2x - y = 201$

D. $y - x = 201$

Question ID dd797fe2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ □ □

ID: dd797fe2

$$4x + 3y = 24$$

Mario purchased 4 binders that cost x dollars each and 3 notebooks that cost y dollars each. If the given equation represents this situation, which of the following is the best interpretation of 24 in this context?

A. The total cost, in dollars, for all binders purchased

B. The total cost, in dollars, for all notebooks purchased

C. The total cost, in dollars, for all binders and notebooks purchased

D. The difference in the total cost, in dollars, between the number of binders and notebooks purchased

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 789975b7

A gardener buys two kinds of fertilizer. Fertilizer A contains 60% filler materials by weight and Fertilizer B contains 40% filler materials by weight. Together, the fertilizers bought by the gardener contain a total of 240 pounds of filler materials. Which equation models this relationship, where x is the number of pounds of Fertilizer A and y is the number of pounds of Fertilizer B?

A. $0.4x + 0.6y = 240$

B. $0.6x + 0.4y = 240$

C. $40x + 60y = 240$

D. $60x + 40y = 240$

Question ID 2554b413

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■☐☐

ID: 2554b413

In the *xy*-plane, a line has a slope of 6 and passes through the point $(0,8)$.

Which of the following is an equation of this line?

A. $y = 6x + 8$

B. $y = 6x + 48$

C. $y = 8x + 6$

D. $y = 8x + 48$

Question ID 52a8ef85

1.14

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ☐ ☐

ID: 52a8ef85

The equation $40x + 20y = 160$ represents the number of sweaters, x, and number of shirts, y, that Yesenia purchased for $\$160$. If Yesenia purchased 2 sweaters, how many shirts did she purchase?

A. 3

B. 4

C. 8

D. 40

mocksatexam.online

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: dfa45424

Tony spends $80 per month on public transportation. A 10-ride pass costs $12.50, and a single-ride pass costs $1.50. If g represents the number of 10-ride passes Tony buys in a month and t represents the number of single-ride passes Tony buys in a month, which of the following equations best represents the relationship between g and t ?

A. $g + t = 80$

B. $g + t = 1.50 + 12.50$

C. $1.50g + 12.50t = 80$

D. $12.50g + 1.50t = 80$

Question ID 520e6f5b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 520e6f5b

Characteristics for Rock Types

Rock type	Weight per volume (lb/ft^3)	Cost per pound
Basalt	180	$0.18
Granite	165	$0.09
Limestone	120	$0.03
Sandstone	135	$0.22

A city is planning to build a rock retaining wall, a monument, and a garden in a park. The table above shows four rock types that will be considered for use in the project. Also shown for each rock type is its weight per volume, in pounds per cubic foot (lb/ft^3), and the cost per pound, in dollars. The equation $0.03(120w)+0.18(180z)+3{,}385.80=7{,}576.20$ gives the total cost, in dollars, of the rocks used in the project in terms of the number of ft^3 of limestone, w, and the number of ft^3 of basalt, z. All four rock types are used in the project. Which of the following is the best interpretation of 3,385.80 in this context?

A. The cost of the granite and sandstone needed for the project

B. The cost of the basalt and limestone needed for the project

C. The cost of the basalt needed for the project

D. The cost of the sandstone needed for the project

Question ID b2de69bd

1.17

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: b2de69bd

x	y
1	5
2	7
3	9
4	11

The table above shows some pairs of *x* values and *y* values. Which of the following equations could represent the relationship between *x* and *y* ?

A. $y = 2x + 3$

B. $y = 3x - 2$

C. $y = 4x - 1$

D. $y = 5x$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: c5479c1a

A shipment consists of 5-pound boxes and 10-pound boxes with a total weight of 220 pounds. There are 13 10-pound boxes in the shipment. How many 5-pound boxes are in the shipment?

A. 5

B. 10

C. 13

D. 18

Question ID 1efd8202

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 1efd8202

$$y = 70x + 8$$

Which table gives three values of x and their corresponding values of y for the given equation?

A.

x	y
0	8
2	148
4	288

B.

x	y
0	70
2	78
4	86

C.

x	y
0	70
2	140
4	280

D.

x	y
0	8
2	132
4	272

Question ID b9839f9e

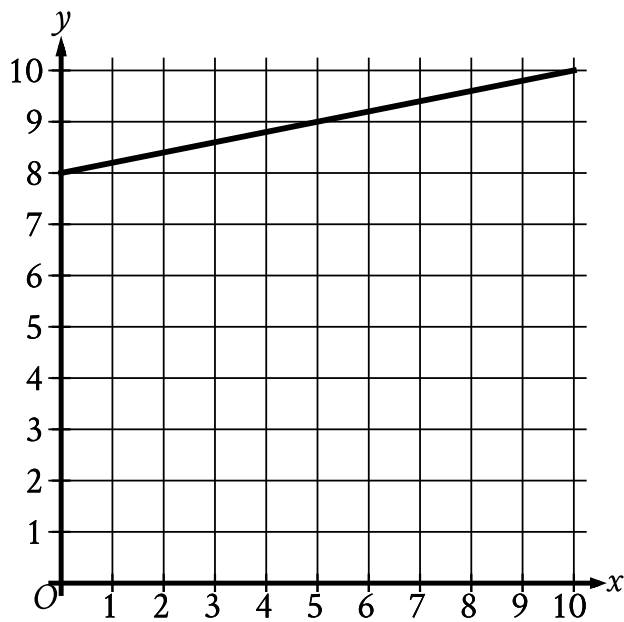| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: b9839f9e

$$F = 2.50x + 7.00y$$

In the equation above, F represents the total amount of money, in dollars, a food truck charges for x drinks and y salads. The price, in dollars, of each drink is the same, and the price, in dollars, of each salad is the same. Which of the following is the best interpretation for the number 7.00 in this context?

A. The price, in dollars, of one drink

B. The price, in dollars, of one salad

C. The number of drinks bought during the day

D. The number of salads bought during the day

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: f40552a9

What is the *y*-intercept of the line graphed?

A. $(0, -8)$

B. $(0, -\frac{1}{8})$

C. $(0, 0)$

D. $(0, 8)$

Question ID 12ae3452

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 12ae3452

The equation $46 = 2a + 2b$ gives the relationship between the side lengths a and b of a certain parallelogram. If $a = 9$, what is the value of b?

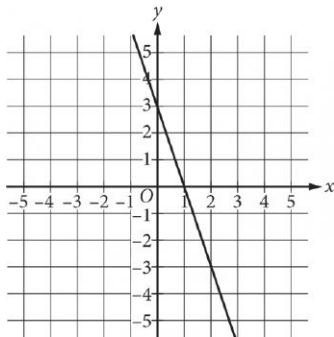| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 8b2a2a63

The *y*-intercept of the graph of $y = -6x - 32$ in the *xy*-plane is $(0, y)$. What is the value of y?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 8a1544f1

What is the equation of the line shown in the xy-plane above?

A. $y = 3x - 3$

B. $y = -3x + 3$

C. $y = \frac{1}{3}x - 3$

D. $y = -\frac{1}{3}x + 3$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■□□

ID: 535fa6e6

Davio bought some potatoes and celery. The potatoes cost $\$0.69$ per pound, and the celery cost $\$0.99$ per pound. If Davio spent $\$5.34$ in total and bought twice as many pounds of celery as pounds of potatoes, how many pounds of celery did Davio buy?

A. 2

B. 2.5

C. 2.67

D. 4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■□

ID: 002dba45

Line k is defined by $y = -\frac{17}{3}x + 5$. Line j is perpendicular to line k in the xy-plane. What is the slope of line j?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■□

ID: 9c7741c6

On a 210-mile trip, Cameron drove at an average speed of 60 miles per hour for the first x hours. He then completed the trip, driving at an average speed of 50 miles per hour for the remaining y hours. If $x = 1$, what is the value of y ?

Question ID d62ad380

2.3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■□

ID: d62ad380

An artist paints and sells square tiles. The selling price P, in dollars, of a painted tile is a linear function of the side length of the tile s, in inches, as shown in the table below.

Side length, s (inches)	Price, P (dollars)
3	8.00
6	18.00
9	28.00

Which of the following could define the relationship between s and P?

A. $P = 3s + 10$

B. $P = \dfrac{10}{3}s + 8$

C. $P = \dfrac{10}{3}s - 2$

D. $P = \dfrac{3}{10}s - \dfrac{1}{10}$

mocksatexam.online

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: 431c3038

In an article about exercise, it is estimated that a 160-pound adult uses 200 calories for every 30 minutes of hiking and 150 calories for every 30 minutes of bicycling. An adult who weighs 160 pounds has completed 1 hour of bicycling. Based on the article, how many hours should the adult hike to use a total of 1,900 calories from bicycling and hiking?

A. 9.5

B. 8.75

C. 6

D. 4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: 265f2a53

When line n is graphed in the *xy*-plane, it has an *x*-intercept of $(-4, 0)$ and a *y*-intercept of $\left(0, \frac{86}{3}\right)$. What is the slope of line n?

A. $\frac{3}{344}$

B. $\frac{6}{43}$

C. $\frac{43}{6}$

D. $\frac{344}{3}$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

In the *xy*-plane, line k passes through the points $(0, -5)$ and $(1, -1)$. Which equation defines line k?

A. $y = -x + \frac{1}{4}$

B. $y = \frac{1}{4}x - 5$

C. $y = -x + 4$

D. $y = 4x - 5$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: 28c2253f

Characteristics for Rock Types

Rock type	Weight per volume (lb/ft^3)	Cost per pound
Basalt	180	$0.18
Granite	165	$0.09
Limestone	120	$0.03
Sandstone	135	$0.22

A city is planning to build a rock retaining wall, a monument, and a garden in a park. The table above shows four rock types that will be considered for use in the project. Also shown for each rock type is its weight per volume, in pounds per cubic foot (lb/ft^3), and the cost per pound, in dollars. Only basalt, granite, and limestone will be used in the garden. The rocks in the garden will have a total weight of 1,000 pounds. If 330 pounds of granite is used, which of the following equations could show the relationship between the amounts, x and y, in ft^3, for each of the other rock types used?

A. $165x + 180y = 670$

B. $165x + 120y = 1{,}000$

C. $120x + 180y = 670$

D. $120x + 180y = 1{,}000$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: 2e1a7f66

Figure A and figure B are both regular polygons. The sum of the perimeter of figure A and the perimeter of figure B is 63 inches. The equation $3x + 6y = 63$ represents this situation, where x is the number of sides of figure A and y is the number of sides of figure B. Which statement is the best interpretation of 6 in this context?

A. Each side of figure B has a length of 6 inches.

B. The number of sides of figure B is 6.

C. Each side of figure A has a length of 6 inches.

D. The number of sides of figure A is 6.

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: 6f6dfe3e

x	y
-6	$n + 184$
-3	$n + 92$
0	n

The table shows three values of x and their corresponding values of y, where n is a constant, for the linear relationship between x and y. What is the slope of the line that represents this relationship in the *xy*-plane?

A. $-\frac{92}{3}$

B. $-\frac{3}{92}$

C. $\frac{n+92}{-3}$

D. $\frac{2n-92}{3}$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

What is the slope of the graph of $y = \frac{1}{4}(27x + 15) + 7x$ in the *xy*-plane?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■☐

ID: fb43b85f

A line passes through the points $(4, 6)$ and $(15, 24)$ in the xy-plane. What is the slope of the line?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■■

ID: 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

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

ID: 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* ?
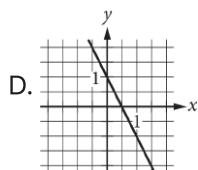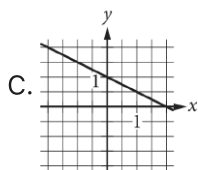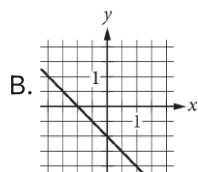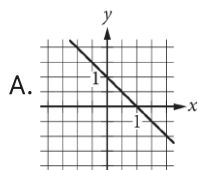
Question ID 0b46bad5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

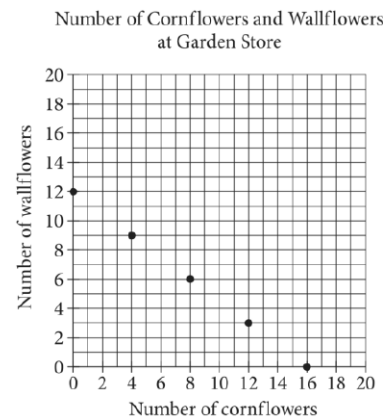**ID: 0b46bad5**

$$ax + by = b$$

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.

Question ID c362c210

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

ID: c362c210

Number of Cornflowers and Wallflowers
at Garden Store

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?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

ID: 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. $-\dfrac{1}{2}$

C. -2

D. The slope of line ℓ is undefined.

| Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■■

ID: 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 $k+n$?

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■■

ID: c4ea43ef
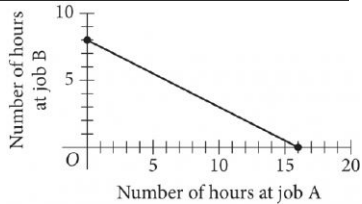
To earn money for college, Avery works two part-time jobs: A and B. She earns $10 per hour working at job A and $20 per hour working at job B. In one week, Avery earned a total of *s* dollars for working at the two part-time jobs. The graph above represents all possible combinations of numbers of hours 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

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■■

ID: 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?

Question ID a7a14e87

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■ ■ ■

ID: 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. $x - y = -3$

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	■■■

ID: 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?