

Question ID 002dba45

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 ?

Question ID f224df07

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: f224df07

A cargo helicopter delivers only 100-pound packages and 120-pound packages. For each delivery trip, the helicopter must carry at least 10 packages, and the total weight of the packages can be at most 1,100 pounds. What is the maximum number of 120-pound packages that the helicopter can carry per trip?

- A. 2
- B. 4
- C. 5
- D. 6

Question ID 3008cfc3

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

ID: 3008cfc3

x	y
k	13
$k + 7$	-15

The table gives the coordinates of two points on a line in the xy -plane. The y -intercept of the line is $(k - 5, b)$, where k and b are constants. What is the value of b ?

Question ID d1b66ae6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: d1b66ae6

$$-x + y = -3.5$$

$$x + 3y = 9.5$$

If (x, y) satisfies the system of equations

above, what is the value of y ?

Question ID cb8f449f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: cb8f449f

one half y equals 4

x minus, one half y, equals 2

The system of equations above has solution (x, y) . What is the value of x ?

A. three

B. the fraction 7 over 2

C. four

D. six

Question ID 88e13c8c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 88e13c8c

The total cost $f(x)$, in dollars, to lease a car for 36 months from a particular car dealership is given by $f(x) = 36x + 1,000$, where x is the monthly payment, in dollars. What is the total cost to lease a car when the monthly payment is \$400?

- A. \$13,400
- B. \$13,000
- C. \$15,400
- D. \$37,400

Question ID 3cdbf026

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

Question ID ff501705

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ff501705

$$\begin{aligned}\frac{3}{2}y - \frac{1}{4}x &= \frac{2}{3} - \frac{3}{2}y \\ \frac{1}{2}x + \frac{3}{2} &= py + \frac{9}{2}\end{aligned}$$

In the given system of equations, p is a constant. If the system has no solution, what is the value of p ?

Question ID 8c5e6702

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 8c5e6702

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 2937ef4f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 2937ef4f

Hector used a tool called an auger to remove corn from a storage bin at a constant rate. The bin contained 24,000 bushels of corn when Hector began to use the auger. After 5 hours of using the auger, 19,350 bushels of corn remained in the bin. If the auger continues to remove corn at this rate, what is the total number of hours Hector will have been using the auger when 12,840 bushels of corn remain in the bin?

- A. 3
- B. 7
- C. 8
- D. 12

Question ID 548a4929

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 548a4929

The function h is defined by $h(x) = 4x + 28$. The graph of $y = h(x)$ 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 $a + b$?

- A. 21
- B. 28
- C. 32
- D. 35

Question ID 9bbce683

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

ID: 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. $(-\frac{26}{3}, 0)$
- B. $(-\frac{9}{2}, 0)$
- C. $(-\frac{11}{3}, 0)$
- D. $(-\frac{17}{6}, 0)$

Question ID 2b15d65f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 2b15d65f

An economist modeled the demand Q for a certain product as a linear function of the selling price P . The demand was 20,000 units when the selling price was \$40 per unit, and the demand was 15,000 units when the selling price was \$60 per unit. Based on the model, what is the demand, in units, when the selling price is \$55 per unit?

- A. 16,250
- B. 16,500
- C. 16,750
- D. 17,500

Question ID 686b7244

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

ID: 686b7244

A certain apprentice has enrolled in **85** hours of training courses. The equation $10x + 15y = 85$ represents this situation, where **x** is the number of on-site training courses and **y** is the number of online training courses this apprentice has enrolled in. How many more hours does each online training course take than each on-site training course?

Question ID b86123af

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: b86123af

Hiro and Sofia purchased shirts and pants from a store. The price of each shirt purchased was the same and the price of each pair of pants purchased was the same. Hiro purchased 4 shirts and 2 pairs of pants for \$86, and Sofia purchased 3 shirts and 5 pairs of pants for \$166. Which of the following systems of linear equations represents the situation, if x represents the price, in dollars, of each shirt and y represents the price, in dollars, of each pair of pants?

- A. $4x + 2y = 86$, and, $3x + 5y = 166$
- B. $4x + 3y = 86$, and, $2x + 5y = 166$
- C. $4x + 2y = 166$, and, $3x + 5y = 86$
- D. $4x + 3y = 166$, and, $2x + 5y = 86$

Question ID ee846db7

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. **$5.48x$**

Question ID 5b8a8475

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

Question ID cfe67646

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: cfe67646

The point $(8, 2)$ in the xy -plane is a solution to which of the following systems of inequalities?

- A. $x > 0$
 $y > 0$
- B. $x > 0$
 $y < 0$
- C. $x < 0$
 $y > 0$
- D. $x < 0$
 $y < 0$

Question ID 608eeb6e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 608eeb6e

$$\begin{aligned}5x &= 15 \\ -4x + y &= -2\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $x + y$?

- A. -17
- B. -13
- C. 13
- D. 17

Question ID be9cb6a2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: be9cb6a2

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 097e10f5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 097e10f5

What value of p satisfies the equation $5p + 180 = 250$?

- A. 14
- B. 65
- C. 86
- D. 250

Question ID 84664a7c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 84664a7c

The front of a roller-coaster car is at the bottom of a hill and is 15 feet above the ground. If the front of the roller-coaster car rises at a constant rate of 8 feet per second, which of the following equations gives the height h , in feet, of the front of the roller-coaster car s seconds after it starts up the hill?

- A. $h = 8s + 15$
- B. $h = 15s + \frac{335}{8}$
- C. $h = 8s + \frac{335}{15}$
- D. $h = 15s + 8$

Question ID e62cfe5f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: e62cfe5f

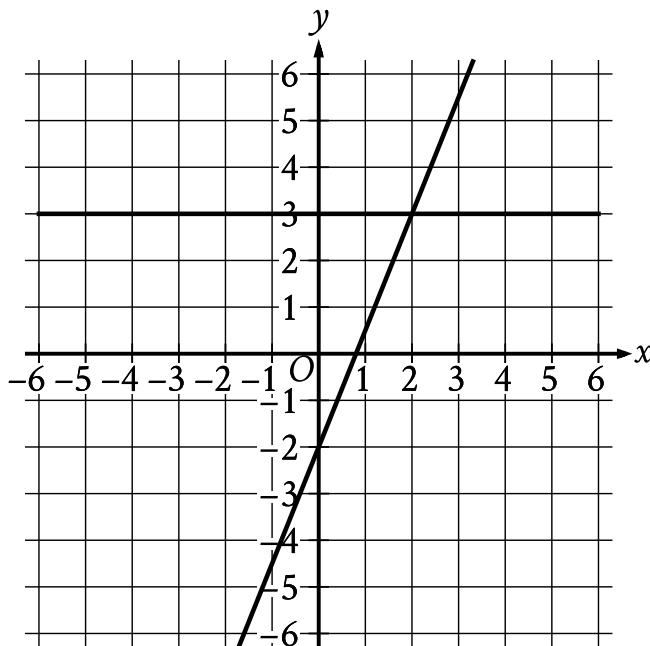
According to a model, the head width, in millimeters, of a worker bumblebee can be estimated by adding 0.6 to four times the body weight of the bee, in grams.

According to the model, what would be the head width, in millimeters, of a worker bumblebee that has a body weight of 0.5 grams?

Question ID b0fc3166

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: b0fc3166



The graph of a system of linear equations is shown. What is the solution (x, y) to the system?

- A. $(0, 3)$
- B. $(1, 3)$
- C. $(2, 3)$
- D. $(3, 3)$

Question ID db422e7f

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

ID: 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 ?

Question ID 01682aa5

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

ID: 01682aa5

Line p is defined by $2y + 18x = 9$. Line r is perpendicular to line p in the xy -plane. What is the slope of line r ?

- A. -9
- B. $-\frac{1}{9}$
- C. $\frac{1}{9}$
- D. 9

Question ID 45cfb9de

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 45cfb9de

Adam's school is a 20-minute walk or a 5-minute bus ride away from his house. The bus runs once every 30 minutes, and the number of minutes, w , that Adam waits for the bus varies between 0 and 30. Which of the following inequalities gives the values of w for which it would be faster for Adam to walk to school?

- A. $w - 5 < 20$
- B. $w - 5 > 20$
- C. $w + 5 < 20$
- D. $w + 5 > 20$

Question ID 06fc1726

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 06fc1726

If f is the function defined by $f(x) = \frac{2x - 1}{3}$,

what is the value of $f(5)$?

- A.  4 thirds
- B.  7 thirds
- C. 3
- D. 9

Question ID 6863c7ce

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 6863c7ce

$$d = 16t$$

The given equation represents the distance d , in inches, where t represents the number of seconds since an object started moving. Which of the following is the best interpretation of **16** in this context?

- A. The object moved a total of **16** inches.
- B. The object moved a total of **$16t$** inches.
- C. The object is moving at a rate of **16** inches per second.
- D. The object is moving at a rate of $\frac{1}{16}$ inches per second.

Question ID a5834ea4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a5834ea4

$$f(x) = 39$$

For the given linear function f , which table gives three values of x and their corresponding values of $f(x)$?

A.

x	$f(x)$
0	0
1	0
2	0

B.

x	$f(x)$
0	39
1	39
2	39

C.

x	$f(x)$
0	0
1	39
2	78

D.

x	$f(x)$
0	39
1	0
2	-39

Question ID 0b332f00

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 0b332f00

The function g is defined by $g(x) = 6x$. For what value of x is $g(x) = 54$?

Question ID 349a5bc1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 349a5bc1

$$4x + 5 = 165$$

What is the solution to the given equation?

Question ID bf4a8b6a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: bf4a8b6a

A company that provides whale-watching tours takes groups of **21** people at a time. The company's revenue is **80** dollars per adult and **60** dollars per child. If the company's revenue for one group consisting of adults and children was **1,440** dollars, how many people in the group were children?

- A. **3**
- B. **9**
- C. **12**
- D. **18**

Question ID 7e3f8363

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 7e3f8363

In the xy -plane, the graph of the linear function f contains the points $(0, 3)$ and $(7, 31)$. Which equation defines f , where $y = f(x)$?

- A. $f(x) = 28x + 34$
- B. $f(x) = 3x + 38$
- C. $f(x) = 4x + 3$
- D. $f(x) = 7x + 3$

Question ID 0eae6be1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 0eae6be1

The number y is 84 less than the number x . Which equation represents the relationship between x and y ?

- A. $y = x + 84$
- B. $y = \frac{1}{84}x$
- C. $y = 84x$
- D. $y = x - 84$

Question ID 447fa970

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 447fa970

The function f is defined by the equation $f(x) = 7x + 2$. What is the value of $f(x)$ when $x = 4$?

Question ID Odd6227f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: Odd6227f

At how many points do the graphs of the equations $y = x + 20$ and $y = 8x$ intersect in the xy -plane?

- A. 0
- B. 1
- C. 2
- D. 8

Question ID b1228811

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: b1228811

Marisa needs to hire at least 10 staff members for an upcoming project. The staff members will be made up of junior directors, who will be paid \$640 per week, and senior directors, who will be paid \$880 per week. Her budget for paying the staff members is no more than \$9,700 per week. She must hire at least 3 junior directors and at least 1 senior director. Which of the following systems of inequalities represents the conditions described if x is the number of junior directors and y is the number of senior directors?

$$640x + 880y \geq 9,700$$

$$x + y \leq 10$$

$$x \geq 3$$

- A. $y \geq 1$

$$640x + 880y \leq 9,700$$

$$x + y \geq 10$$

$$x \geq 3$$

- B. $y \geq 1$

$$640x + 880y \geq 9,700$$

$$x + y \geq 10$$

$$x \leq 3$$

- C. $y \leq 1$

$$640x + 880y \leq 9,700$$

$$x + y \leq 10$$

$$x \leq 3$$

- D. $y \leq 1$

Question ID 6105234d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 6105234d

John paid a total of \$165 for a microscope by making a down payment of \$37 plus p monthly payments of \$16 each. Which of the following equations represents this situation?

- A. $16p - 37 = 165$
- B. $37p - 16 = 165$
- C. $16p + 37 = 165$
- D. $37p + 16 = 165$

Question ID 7efe5495

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 7efe5495

$$\begin{aligned}y &= 3x \\2x + y &= 12\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $5x$?

- A. 24
- B. 15
- C. 12
- D. 5

Question ID 2c121b25

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 2c121b25

Valentina bought two containers of beads. In the first container 30% of the beads are red, and in the second container 70% of the beads are red. Together, the containers have at least 400 red beads. Which inequality shows this relationship, where x is the total number of beads in the first container and y is the total number of beads in the second container?

A. $0.3x + 0.7y \geq 400$

B. $0.7x + 0.3y \leq 400$

C. $\frac{x}{3} + \frac{y}{7} \leq 400$

D. $30x + 70y \geq 400$

Question ID 83f2c3bf

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

ID: 83f2c3bf

$$y = x + 4$$

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

A.

x	y
0	4
1	5
2	6

B.

x	y
0	6
1	5
2	4

C.

x	y
0	2
1	1
2	0

D.

x	y
0	0
1	1
2	2

Question ID c50ede6d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: c50ede6d

The total cost, in dollars, to rent a surfboard consists of a **\$25** service fee and a **\$10** per hour rental fee. A person rents a surfboard for t hours and intends to spend a maximum of **\$75** to rent the surfboard. Which inequality represents this situation?

- A. $10t \leq 75$
- B. $10 + 25t \leq 75$
- C. $25t \leq 75$
- D. $25 + 10t \leq 75$

Question ID b23bba4c

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

Question ID c1bd5301

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c1bd5301

A model predicts that a certain animal weighed **241** pounds when it was born and that the animal gained **3** pounds per day in its first year of life. This model is defined by an equation in the form $f(x) = a + bx$, where $f(x)$ is the predicted weight, in pounds, of the animal x days after it was born, and a and b are constants. What is the value of a ?

Question ID 24854644

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

ID: 24854644

What is the equation of the line that passes through the point $(0, 5)$ and is parallel to the graph of $y = 7x + 4$ in the xy -plane?

- A. $y = 5x$
- B. $y = 7x + 5$
- C. $y = 7x$
- D. $y = 5x + 7$

Question ID 71189542

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 71189542

A group of 202 people went on an overnight camping trip, taking 60 tents with them. Some of the tents held 2 people each, and the rest held 4 people each. Assuming all the tents were filled to capacity and every person got to sleep in a tent, exactly how many of the tents were 2-person tents?

- A. 30
- B. 20
- C. 19
- D. 18

Question ID dba8d38a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: dba8d38a

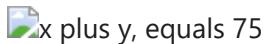
A petting zoo sells two types of tickets. The standard ticket, for admission only, costs \$5. The premium ticket, which includes admission and food to give to the animals, costs \$12. One Saturday, the petting zoo sold a total of 250 tickets and collected a total of \$2,300 from ticket sales. Which of the following systems of equations can be used to find the number of standard tickets, s , and premium tickets, p , sold on that Saturday?

- A. Equation 1: $s + p = 250$. Equation 2: $5s + 12p = 2,300$.
- B. Equation 1: $s + p = 250$. Equation 2: $12s + 5p = 2,300$.
- C. Equation 1: $5s + 12p = 250$. Equation 2: $s + p = 2,300$.
- D. Equation 1: $12s + 5p = 250$. Equation 2: $s + p = 2,300$.

Question ID 87322577

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

ID: 87322577



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

Question ID 64c85440

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 64c85440

In North America, the standard width of a parking space is at least 7.5 feet and no more than 9.0 feet. A restaurant owner recently resurfaced the restaurant's parking lot and wants to determine the number of parking spaces, n , in the parking lot that could be placed perpendicular to a curb that is 135 feet long, based on the standard width of a parking space. Which of the following describes all the possible values of n ?

- A. $18 \leq n \leq 135$
- B. $7.5 \leq n \leq 9$
- C. $15 \leq n \leq 135$
- D. $15 \leq n \leq 18$

Question ID 5c94e6fa

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 5c94e6fa

$$3x + 21 = 3x + k$$

In the given equation, k is a constant. The equation has infinitely many solutions. What is the value of k ?

Question ID 7a5a74a6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 7a5a74a6

$$3(2x - 6) - 11 = 4(x - 3) + 6$$

If x is the solution to the equation above,
what is the value of $x - 3$?

A.  23 over 2

B. $\frac{17}{2}$

C. $\frac{15}{2}$

D. $-\frac{15}{2}$

Question ID b7e6394d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: b7e6394d

Alan drives an average of 100 miles each week. His car can travel an average of 25 miles per gallon of gasoline. Alan would like to reduce his weekly expenditure on gasoline by \$5. Assuming gasoline costs \$4 per gallon, which equation can Alan use to determine how many fewer average miles, m , he should drive each week?

A. $\frac{25}{4}m = 95$

B. $\frac{25}{4}m = 5$

C. $\frac{4}{25}m = 95$

D. $\frac{4}{25}m = 5$

Question ID 95cad55f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	3

ID: 95cad55f

A laundry service is buying detergent and fabric softener from its supplier. The supplier will deliver no more than 300 pounds in a shipment. Each container of detergent weighs 7.35 pounds, and each container of fabric softener weighs 6.2 pounds. The service wants to buy at least twice as many containers of detergent as containers of fabric softener. Let d represent the number of containers of detergent, and let s represent the number of containers of fabric softener, where d and s are nonnegative integers. Which of the following systems of inequalities best represents this situation?

- A. 7 point three five d , plus, 6 point 2 s , is less than or equal to 300, and, d is greater than or equal to 2 s
- B. 7 point three five d , plus, 6 point 2 s , is less than or equal to 300, and, 2 d is greater than or equal to s
- C. 14 point 7 d , plus, 6 point 2 s , is less than or equal to 300, and, d is greater than or equal to 2 s
- D. 14 point 7 d , plus, 6 point 2 s , is less than or equal to 300, and, 2 d is greater than or equal to s

Question ID bf36c815

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: bf36c815

The function g is defined by $g(x) = -x + 8$.

What is the value of $g(0)$?

- A. -8
- B. 0
- C. 4
- D. 8

Question ID 968e9e51

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 968e9e51

$$y \leq x$$

$$y \leq -x$$

Which of the following ordered pairs (x, y) is a solution to the system of inequalities above?

- A. $(1, 0)$
- B. $(-1, 0)$
- C. $(0, 1)$
- D. $(0, -1)$

Question ID 9f3cb472

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

ID: 9f3cb472

Line t in the xy -plane has a slope of $-\frac{1}{3}$ and passes through the point $(9, 10)$. Which equation defines line t ?

- A. $y = 13x - \frac{1}{3}$
- B. $y = 9x + 10$
- C. $y = -\frac{x}{3} + 10$
- D. $y = -\frac{x}{3} + 13$

Question ID aa85b138

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: aa85b138

$$2n + 6 = 14$$

A tree had a height of 6 feet when it was planted. The equation above can be used to find how many years n it took the tree to reach a height of 14 feet. Which of the following is the best interpretation of the number 2 in this context?

- A. The number of years it took the tree to double its height
- B. The average number of feet that the tree grew per year
- C. The height, in feet, of the tree when the tree was 1 year old
- D. The average number of years it takes similar trees to grow 14 feet

Question ID 15daa8d6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 15daa8d6

$$2x + 16 = a(x + 8)$$

In the given equation, a is a constant. If the equation has infinitely many solutions, what is the value of a ?

Question ID 2f0a43b2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 2f0a43b2

If $\frac{x}{8} = 5$, what is the value of $\frac{8}{x}$?

Question ID ebf8d2b7

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

ID: ebf8d2b7

A machine makes large boxes or small boxes, one at a time, for a total of **700** minutes each day. It takes the machine **10** minutes to make a large box or **5** minutes to make a small box. Which equation represents the possible number of large boxes, x , and small boxes, y , the machine can make each day?

- A. $5x + 10y = 700$
- B. $10x + 5y = 700$
- C. $(x + y)(10 + 5) = 700$
- D. $(10 + x)(5 + y) = 700$

Question ID 997bec28

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 997bec28

The perimeter of an isosceles triangle is **83** inches. Each of the two congruent sides of the triangle has a length of **24** inches. What is the length, in inches, of the third side?

Question ID 12ee1edc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 12ee1edc

$$(b-2)x = 8$$

In the given equation, b is a constant. If the equation has no solution, what is the value of b ?

- A. 2
- B. 4
- C. 6
- D. 10

Question ID c6b151d4

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.

Question ID 0d391910

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 0d391910

The function f is defined by $f(x) = 4x$. For what value of x does $f(x) = 8$?

Question ID ee439cff

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: ee439cff

On a car trip, Rhett and Jessica each drove for part of the trip, and the total distance they drove was under **220** miles. Rhett drove at an average speed of **35 miles per hour (mph)**, and Jessica drove at an average speed of **40 mph**. Which of the following inequalities represents this situation, where r is the number of hours Rhett drove and j is the number of hours Jessica drove?

- A. $35r + 40j > 220$
- B. $35r + 40j < 220$
- C. $40r + 35j > 220$
- D. $40r + 35j < 220$

Question ID ee2f611f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: ee2f611f

A local transit company sells a monthly pass for \$95 that allows an unlimited number of trips of any length. Tickets for individual trips cost \$1.50, \$2.50, or \$3.50, depending on the length of the trip. What is the minimum number of trips per month for which a monthly pass could cost less than purchasing individual tickets for trips?

Question ID 8c98c834

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

Question ID 563407e5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 563407e5

A bakery sells trays of cookies. Each tray contains at least 50 cookies but no more than 60. Which of the following could be the total number of cookies on 4 trays of cookies?

- A. 165
- B. 205
- C. 245
- D. 285

Question ID 25e1cfed

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 25e1cfed

How many solutions does the equation $10(15x - 9) = -15(6 - 10x)$ have?

- A. Exactly one
- B. Exactly two
- C. Infinitely many
- D. Zero

Question ID 317e80f9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 317e80f9

$$x + y = 18$$

$$5y = x$$

What is the solution (x, y) to the given system of equations?

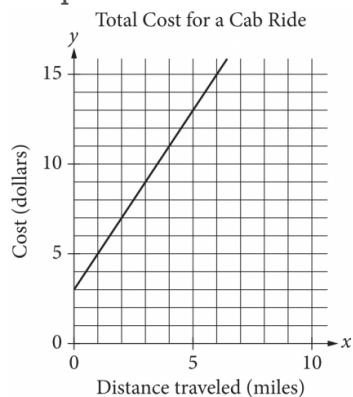
- A. (15, 3)
- B. (16, 2)
- C. (17, 1)
- D. (18, 0)

Question ID 3f5375d9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 3f5375d9

The line graphed in the xy -plane below models the total cost, in dollars, for a cab ride, y , in a certain city during nonpeak hours based on the number of miles traveled, x .



According to the graph, what is the cost for each additional mile traveled, in dollars, of a cab ride?

- A. \$2.00
- B. \$2.60
- C. \$3.00
- D. \$5.00

Question ID fdee0fbf

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 541bef2f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ ■

ID: 541bef2f

$$\begin{aligned}y &\leq x + 7 \\y &\geq -2x - 1\end{aligned}$$

Which point (x, y) is a solution to the given system of inequalities in the xy -plane?

- A. $(-14, 0)$
- B. $(0, -14)$
- C. $(0, 14)$
- D. $(14, 0)$

Question ID 620fe971

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 620fe971

A team of workers has been moving cargo off of a ship. The equation below models the approximate number of tons of cargo, y , that remains to be moved x hours after the team started working.

 y equals, 120 minus 25 x

The graph of this equation in the xy -plane is a line. What is the best interpretation of the x -intercept in this context?

- A. The team will have moved all the cargo in about 4.8 hours.
- B. The team has been moving about 4.8 tons of cargo per hour.
- C. The team has been moving about 25 tons of cargo per hour.
- D. The team started with 120 tons of cargo to move.

Question ID 6a87902f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 6a87902f

$$y = 2x + 10$$

$$y = 2x - 1$$

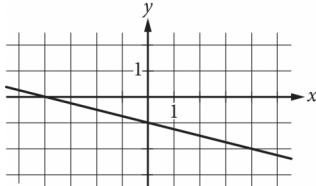
At how many points do the graphs of the given equations intersect in the xy -plane?

- A. Zero
- B. Exactly one
- C. Exactly two
- D. Infinitely many

Question ID b2845d88

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

B. $y = -x - 4$

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

D. $y = -4x - 1$

Question ID f75bd744

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: f75bd744

$$\begin{aligned}4x - 6y &= 10y + 2 \\ty &= \frac{1}{2} + 2x\end{aligned}$$

In the given system of equations, t is a constant. If the system has no solution, what is the value of t ?

Question ID b450ab03

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. $30.7x + 24.3y = 46.1$

Question ID b3abf40f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: b3abf40f

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

The function F gives the temperature, in degrees Fahrenheit, that corresponds to a temperature of x kelvins. If a temperature increased by 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 6ac23de7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 6ac23de7

the fraction $4x$ over 5 ,

equals 20

In the equation above, what is

the value of x ?

A. 25

B. 24

C. 16

D. 15

Question ID 6e6a3241

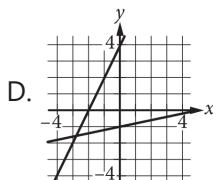
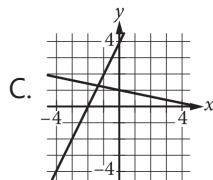
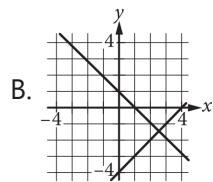
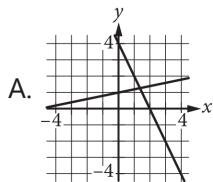
Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■ ■ □

ID: 6e6a3241

$$x + 5y = 5$$

$$2x - y = -4$$

Which of the following graphs in the xy -plane could be used to solve the system of equations above?



Question ID e6cb2402

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: e6cb2402

$$3(kx + 13) = \frac{48}{17}x + 36$$

In the given equation, k is a constant. The equation has no solution. What is the value of k ?

Question ID e470e19d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: e470e19d

The function f is defined by $f(x) = 7x - 84$. What is the x -intercept of the graph of $y = f(x)$ in the xy -plane?

- A. $(-12, 0)$
- B. $(-7, 0)$
- C. $(7, 0)$
- D. $(12, 0)$

Question ID f7e39fe9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: f7e39fe9

x	10	15	20	25
$f(x)$	82	137	192	247

The table shows four values of x and their corresponding values of $f(x)$. There is a linear relationship between x and $f(x)$ that is defined by the equation $f(x) = mx - 28$, where m is a constant. What is the value of m ?

Question ID aff28230

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: aff28230

$$\begin{aligned}x &= 10 \\y &= x + 21\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of y ?

- A. 2.1
- B. 10
- C. 21
- D. 31

Question ID f5929f7a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: f5929f7a

$$\begin{aligned}y &= -\frac{1}{9}x \\y &= \frac{1}{2}x\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of x ?

- A. -9
- B. -7
- C. 0
- D. 2

Question ID 6c71f3ec

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 6c71f3ec

A salesperson's total earnings consist of a base salary of x dollars per year, plus commission earnings of 11% of the total sales the salesperson makes during the year. This year, the salesperson has a goal for the total earnings to be at least 3 times and at most 4 times the base salary. Which of the following inequalities represents all possible values of total sales s , in dollars, the salesperson can make this year in order to meet that goal?

- A. $2x \leq s \leq 3x$
- B. $\frac{2}{0.11}x \leq s \leq \frac{3}{0.11}x$
- C. $3x \leq s \leq 4x$
- D. $\frac{3}{0.11}x \leq s \leq \frac{4}{0.11}x$

Question ID 7392dfc1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 7392dfc1

Which of the following is equivalent to $4x + 6 = 12$?

- A. $2x + 4 = 6$
- B. $x + 3 = 3$
- C. $3x + 2 = 4$
- D. $2x + 3 = 6$

Question ID 93954cfa

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 93954cfa

One pound of grapes costs \$2. At this rate, how many dollars will c pounds of grapes cost?

A. $2c$

B. $2+c$

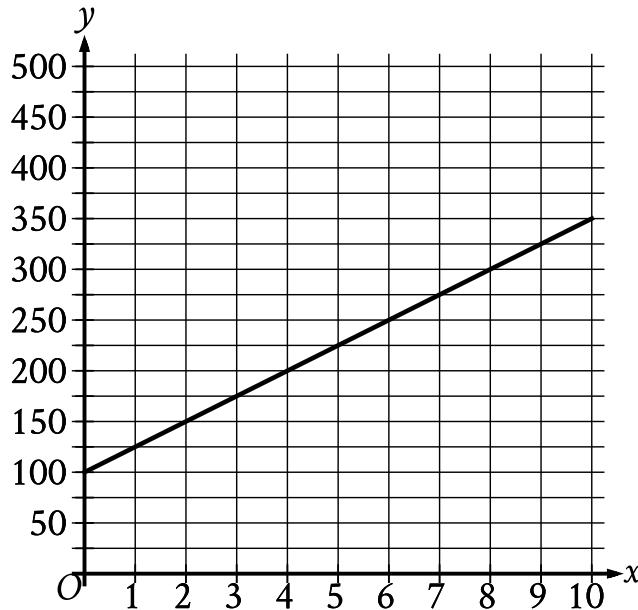
C. $\frac{2}{c}$

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

Question ID 5cf1bbc9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	█ █ █

ID: 5cf1bbc9



The graph of the function f , where $y = f(x)$, gives the total cost y , in dollars, for a certain video game system and x games. What is the best interpretation of the slope of the graph in this context?

- A. Each game costs \$25.
- B. The video game system costs \$100.
- C. The video game system costs \$25.
- D. Each game costs \$100.

Question ID 74c03c21

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 74c03c21

A bus traveled on the highway and on local roads to complete a trip of **160 miles**. The trip took **4 hours**. The bus traveled at an average speed of **55 miles per hour (mph)** on the highway and an average speed of **25 mph** on local roads. If x is the time, in hours, the bus traveled on the highway and y is the time, in hours, it traveled on local roads, which system of equations represents this situation?

A. $55x + 25y = 4$

$x + y = 160$

B. $55x + 25y = 160$

$x + y = 4$

C. $25x + 55y = 4$

$x + y = 160$

D. $25x + 55y = 160$

$x + y = 4$

Question ID 9c7741c6

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 68f2cbaf

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 68f2cbaf

Ty set a goal to walk at least **24** kilometers every day to prepare for a multiday hike. On a certain day, Ty plans to walk at an average speed of **4** kilometers per hour. What is the minimum number of hours Ty must walk on that day to fulfill the daily goal?

- A. **4**
- B. **6**
- C. **20**
- D. **24**

Question ID 8abed0fb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 8abed0fb

$$y = 2x + 3$$

$$x = 1$$

What is the solution (x,y) to the given system of equations?

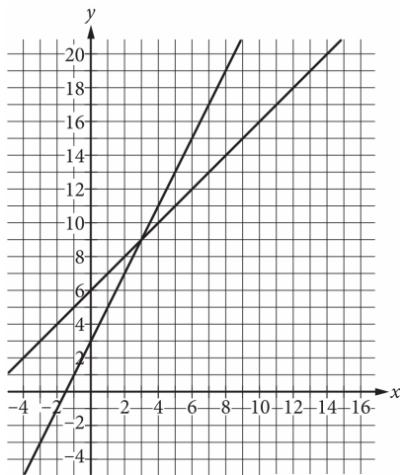
- A. $(1,2)$
- B. $(1,5)$
- C. $(2,3)$
- D. $(2,7)$

Question ID e1259a5a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: e1259a5a

A system of two linear equations is graphed in the xy -plane below.



Which of the following points is the solution to the system of equations?

- A. (3,9)
- B. (6,15)
- C. (8,10)
- D. (12,18)

Question ID 3d04de9c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 3d04de9c

A principal used a total of **25** flags that were either blue or yellow for field day. The principal used **20** blue flags. How many yellow flags were used?

- A. **5**
- B. **20**
- C. **25**
- D. **30**

Question ID b988eeec

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: b988eeec

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 70feb725

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 70feb725

During a month, Morgan ran r miles at 5 miles per hour and biked b miles at 10 miles per hour. She ran and biked a total of 200 miles that month, and she biked for twice as many hours as she ran. What is the total number of miles that Morgan biked during the month?

- A. 80
- B. 100
- C. 120
- D. 160

Question ID 8a87c2c8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 8a87c2c8

$$\begin{aligned}x + 3 &= -2y + 5 \\x - 3 &= 2y + 7\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $2x$?

- A. **-2**
- B. **6**
- C. **12**
- D. **24**

Question ID 60f71697

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 60f71697

$$8x = 88$$

What value of x is the solution to the given equation?

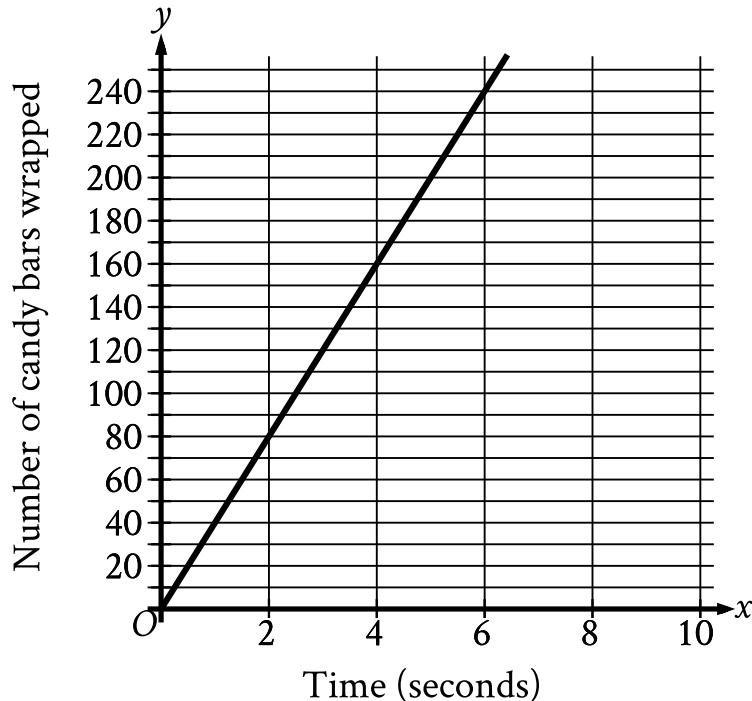
- A. 11
- B. 80
- C. 96
- D. 704

Question ID 13294295

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 13294295

The graph shown models the number of candy bars a certain machine wraps with a label in x seconds.



According to the graph, what is the estimated number of candy bars the machine wraps with a label per second?

- A. 2
- B. 40
- C. 78
- D. 80

Question ID ed92fb68

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ed92fb68

 4 x plus 5 y , equals 100, and, 5 x plus 4 y , equals 62

If the system of equations above has solution (x, y) ,

what is the value of $x + y$?

- A. 0
- B. 9
- C. 18
- D. 38

Question ID 1a621af4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 1a621af4

A number x is at most 2 less than 3 times the value of y . If the value of y is -4 , what is the greatest possible value of x ?

Question ID 3e9eaffc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 3e9eaffc

Caleb used juice to make popsicles. The function $f(x) = -5x + 30$ approximates the volume, in fluid ounces, of juice Caleb had remaining after making x popsicles. Which statement is the best interpretation of the y -intercept of the graph of $y = f(x)$ in the xy -plane in this context?

- A. Caleb used approximately **5** fluid ounces of juice for each popsicle.
- B. Caleb had approximately **5** fluid ounces of juice when he began to make the popsicles.
- C. Caleb had approximately **30** fluid ounces of juice when he began to make the popsicles.
- D. Caleb used approximately **30** fluid ounces of juice for each popsicle.

Question ID af2ba762

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: af2ba762

According to data provided by the US Department of Energy, the average price per gallon of regular gasoline in the United States from September 1, 2014, to December 1, 2014, is modeled by the function F defined below, where $F(x)$ is the average price per gallon x months after September 1.

$$F(x) = 2.74 - 0.19(x - 3)$$

The constant 2.74 in this function estimates which of the following?

- A. The average monthly decrease in the price per gallon
- B. The difference in the average price per gallon from September 1, 2014, to December 1, 2014
- C. The average price per gallon on September 1, 2014
- D. The average price per gallon on December 1, 2014

Question ID 19fdf387

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 19fdf387

In the xy -plane, the graph of $y = x + 3$ intersects the graph of $y = 2x - 6$ at the point (a, b) . What is the value of a ?

- A. 3
- B. 6
- C. 9
- D. 12

Question ID a775af14

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a775af14

In the xy -plane, the graph of the linear function f contains the points $(0, 2)$ and $(8, 34)$. Which equation defines f , where $y = f(x)$?

- A. $f(x) = 2x + 42$
- B. $f(x) = 32x + 36$
- C. $f(x) = 4x + 2$
- D. $f(x) = 8x + 2$

Question ID db0107df

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

ID: db0107df

The y -intercept of the graph of $12x + 2y = 18$ in the xy -plane is $(0, y)$. What is the value of y ?

Question ID b9835972

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

ID: 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 ?

Question ID df32b09c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: df32b09c

Tom scored 85, 78, and 98 on his first three exams in history class. Solving which inequality gives the score, G , on Tom's fourth exam that will result in a mean score on all four exams of at least 90?

- A.  $90 \text{ minus, open parenthesis, } 85 \text{ plus } 78 \text{ plus } 98, \text{ close parenthesis, is less than or equal to } 4G$
- B.  $4G, \text{ plus } 85, \text{ plus } 78, \text{ plus } 98, \text{ is greater than or equal to } 360$
- C.  $\frac{\text{the fraction with numerator, open parenthesis, } G \text{ plus } 85 \text{ plus } 78 \text{ plus } 98, \text{ close parenthesis, and denominator } 4, \text{ end fraction, is greater than or equal to } 90}$
- D.  $\frac{\text{the fraction with numerator, open parenthesis, } 85 \text{ plus } 78 \text{ plus } 98, \text{ close parenthesis, and denominator } 4, \text{ end fraction, is greater than or equal to } 90 \text{ minus } 4G}$

Question ID e1248a5c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: e1248a5c

In the system of equations below, a and c are constants.

$$\frac{1}{2}x + \frac{1}{3}y = \frac{1}{6}$$

$$ax + y = c$$

If the system of equations has an infinite number of solutions (x, y) , what is the value of a ?

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

B. 0

C. $\frac{1}{2}$

D. $\frac{3}{2}$

Question ID b8cbe394

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: b8cbe394

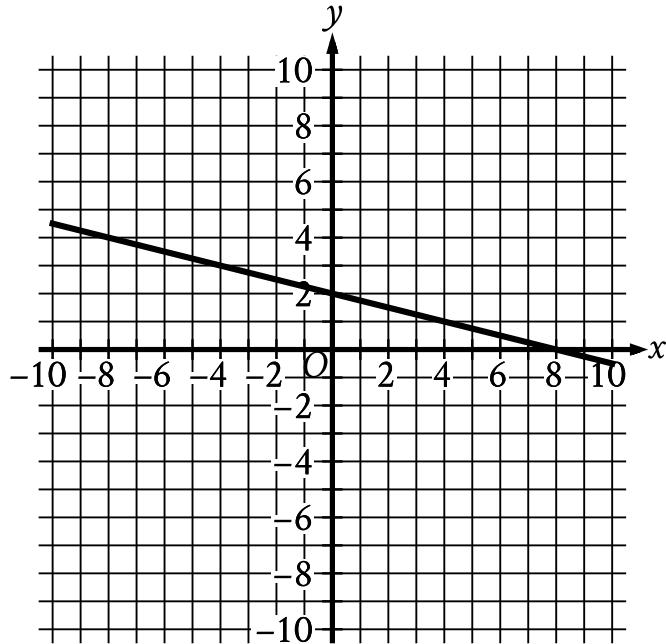
Sean rents a tent at a cost of \$11 per day plus a onetime insurance fee of \$10. Which equation represents the total cost c , in dollars, to rent the tent with insurance for d days?

- A. $c = 11(d + 10)$
- B. $c = 10(d + 11)$
- C. $c = 11d + 10$
- D. $c = 10d + 11$

Question ID 05bb1af9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

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

Question ID cc7ffe02

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

ID: cc7ffe02

Keenan made **32** cups of vegetable broth. Keenan then filled x small jars and y large jars with all the vegetable broth he made. The equation $3x + 5y = 32$ represents this situation. Which is the best interpretation of $5y$ in this context?

- A. The number of large jars Keenan filled
- B. The number of small jars Keenan filled
- C. The total number of cups of vegetable broth in the large jars
- D. The total number of cups of vegetable broth in the small jars

Question ID dae126d7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: dae126d7

The boiling point of water at sea level is 212 degrees Fahrenheit (${}^{\circ}\text{F}$). For every 550 feet above sea level, the boiling point of water is lowered by about $1 {}^{\circ}\text{F}$. Which of the following equations can be used to find the boiling point B of water, in ${}^{\circ}\text{F}$, x feet above sea level?

- A. $B = 550 + \frac{x}{212}$
- B. $B = 550 - \frac{x}{212}$
- C. $B = 212 + \frac{x}{550}$
- D. $B = 212 - \frac{x}{550}$

Question ID bf5f80c6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: bf5f80c6

$$y < -4x + 4$$

Which point (x, y) is a solution to the given inequality in the xy -plane?

- A. $(-4, 0)$
- B. $(0, 5)$
- C. $(2, 1)$
- D. $(2, -1)$

Question ID 12983c1e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 12983c1e

x	f(x)
1	5
3	13
5	21

Some values of the linear function f are shown in the table above.

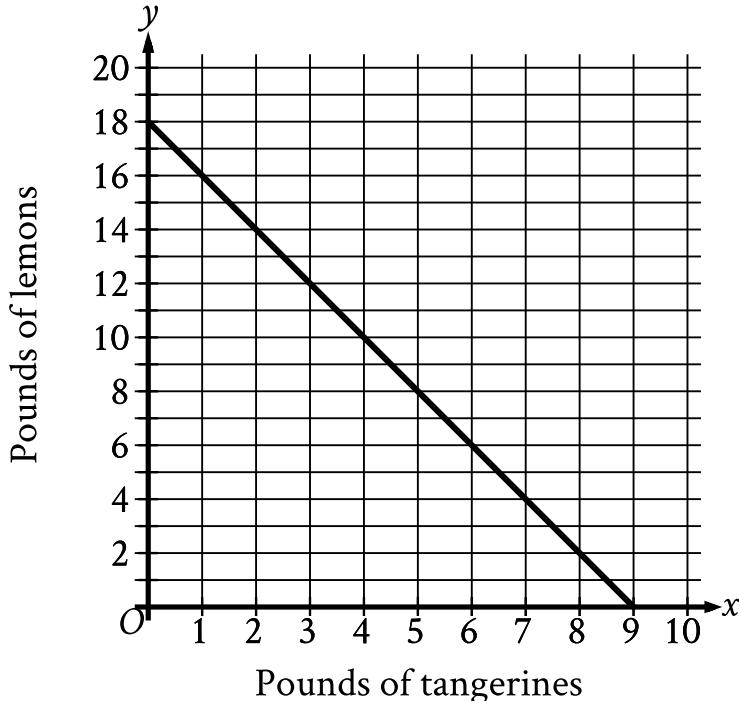
Which of the following defines f ?

- A. $f(x) = 2x + 3$
- B. $f(x) = 3x + 2$
- C. $f(x) = 4x + 1$
- D. $f(x) = 5x$

Question ID 8368afd1

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

Question ID ae2287e2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: ae2287e2

A certain product costs a company \$65 to make. The product is sold by a salesperson who earns a commission that is equal to 20% of the sales price of the product. The profit the company makes for each unit is equal to the sales price minus the combined cost of making the product and the commission. If the sales price of the product is \$100, which of the following equations gives the number of units, u , of the product the company sold to make a profit of \$6,840?

A. $(100(1 - 0.2) - 65)u = 6,840$

B. $(100 - 65)(1 - 0.8)u = 6,840$

C. $0.8(100) - 65u = 6,840$

D. $(0.2(100) + 65)u = 6,840$

Question ID 1362ccde

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 1362ccde

$$\begin{aligned}y &= 4x + 1 \\4y &= 15x - 8\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $x - y$?

Question ID 70d9516e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 70d9516e

A bus is traveling at a constant speed along a straight portion of road. The equation $d = 30t$ gives the distance d , in feet from a road marker, that the bus will be t seconds after passing the marker. How many feet from the marker will the bus be 2 seconds after passing the marker?

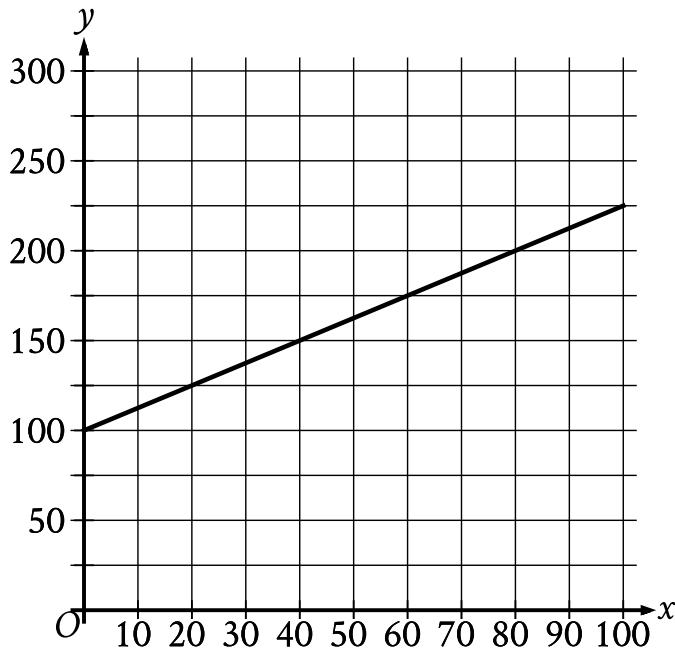
- A. 30
- B. 32
- C. 60
- D. 90

Question ID 720e51ac

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 720e51ac

The cost y , in dollars, for a manufacturer to make x rings is represented by the line shown.



What is the cost, in dollars, for the manufacturer to make **60** rings?

- A. 100
- B. 125
- C. 175
- D. 225

Question ID 4de87c9a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 4de87c9a

3 more than 8 times a number x is equal to 83. Which equation represents this situation?

- A. $(3)(8)x = 83$
- B. $8x = 83 + 3$
- C. $3x + 8 = 83$
- D. $8x + 3 = 83$

Question ID 52cb8ea4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 52cb8ea4

Equation 1: $7x - 5y = 4$. Equation 2: $4x - 8y = 9$.

If (x, y) is the solution to the system of equations above,

what is the value of $3x + 3y$?

A.  negative 13

B.  negative 5

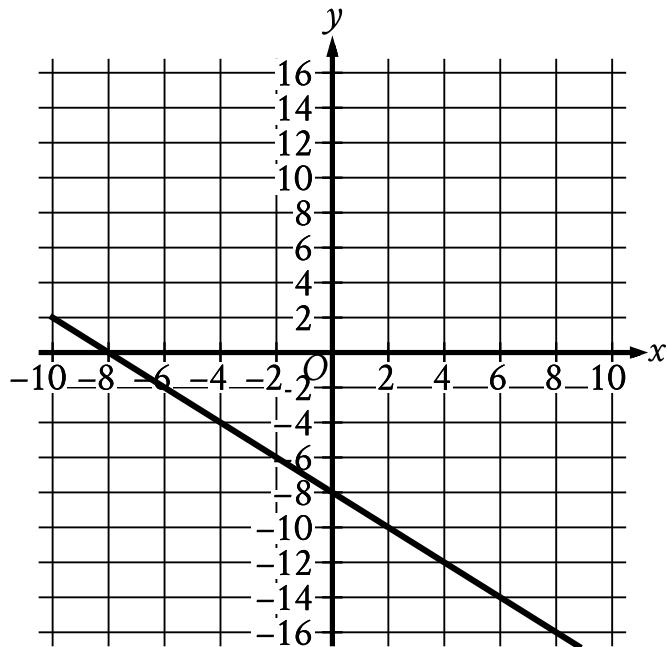
C.  5

D.  13

Question ID c307283c

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

ID: c307283c



What is an equation of the graph shown?

- A. $y = -2x - 8$
- B. $y = x - 8$
- C. $y = -x - 8$
- D. $y = 2x - 8$

Question ID 8adf1335

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 9db5b5c1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 9db5b5c1

$$\begin{aligned}4x &= 20 \\ -3x + y &= -7\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of $x + y$?

- A. **-27**
- B. **-13**
- C. **13**
- D. **27**

Question ID 80da233d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 80da233d

A certain elephant weighs 200 pounds at birth and gains more than 2 but less than 3 pounds per day during its first year. Which of the following inequalities represents all possible weights w , in pounds, for the elephant 365 days after birth?

- A. $400 < w < 600$
- B. $565 < w < 930$
- C. $730 < w < 1,095$
- D. $930 < w < 1,295$

Question ID 271f7e3f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 271f7e3f

 If x equals, the fraction with numerator x plus 7, and denominator 4

For the function f defined above, what is the value

of $f(9) - f(1)$?

A. 1

B. 2

C. $\frac{1}{4}$

D. $\frac{9}{4}$

Question ID 70e29454

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 70e29454

$$a(3-x) - b = -1 - 2x$$

In the equation above, a and b are constants. If the equation has infinitely many solutions, what are the values of a and b ?

- A. $a = 2$ and $b = 1$
- B. $a = 2$ and $b = 7$
- C. $a = -2$ and $b = 5$
- D. $a = -2$ and $b = -5$

Question ID e7b6f0d1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: e7b6f0d1

$$4x + 6 = 18$$

Which equation has the same solution as the given equation?

- A. $4x = 108$
- B. $4x = 24$
- C. $4x = 12$
- D. $4x = 3$

Question ID 0b46bad5

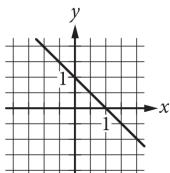
Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

ID: 0b46bad5

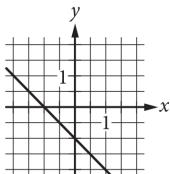
$$ax + by = b$$

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?

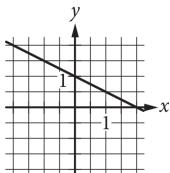
A.



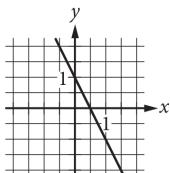
B.



C.



D.



Question ID b31c3117

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ □

ID: b31c3117

$$H = 120p + 60$$

The Karvonen formula above shows the relationship between Alice's target heart rate H , in beats per minute (bpm), and the intensity level p of different activities. When $p = 0$, Alice has a resting heart rate. When $p = 1$, Alice has her maximum heart rate. It is recommended that p be between 0.5 and 0.85 for Alice when she trains. Which of the following inequalities describes Alice's target training heart rate?

- A. $120 \leq H \leq 162$
- B. $102 \leq H \leq 120$
- C. $60 \leq H \leq 162$
- D.  60 is less than or equal to H , which is less than or equal to 102

Question ID f79fffba

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: f79fffba

The function h is defined by $h(x) = 3x - 7$. What is the value of $h(-2)$?

- A. **-13**
- B. **-10**
- C. **10**
- D. **13**

Question ID 7d5d1b32

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 7d5d1b32

$$2(kx - n) = -\frac{28}{15}x - \frac{36}{19}$$

In the given equation, k and n are constants and $n > 1$. The equation has no solution. What is the value of k ?

Question ID e7343559

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

ID: e7343559

$$y = -4x + 40$$

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

A.

x	y
0	0
1	-4
2	-8

B.

x	y
0	40
1	44
2	48

C.

x	y
0	40
1	36
2	32

D.

x	y
0	0
1	4
2	8

Question ID f09097b1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: f09097b1

An agricultural scientist studying the growth of corn plants recorded the height of a corn plant at the beginning of a study and the height of the plant each day for the next 12 days. The scientist found that the height of the plant increased by an average of 1.20 centimeters per day for the 12 days. If the height of the plant on the last day of the study was 36.8 centimeters, what was the height, in centimeters, of the corn plant at the beginning of the study?

Question ID a9039591

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a9039591

x	$f(x)$
0	29
1	32
2	35

For the linear function f , the table shows three values of x and their corresponding values of $f(x)$. Which equation defines $f(x)$?

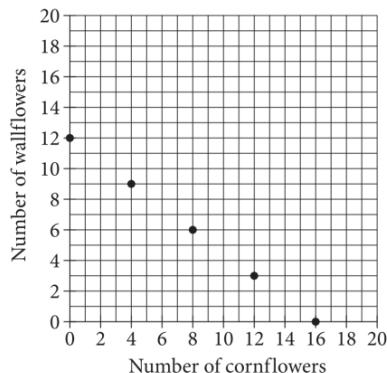
- A. $f(x) = 3x + 29$
- B. $f(x) = 29x + 32$
- C. $f(x) = 35x + 29$
- D. $f(x) = 32x + 35$

Question ID c362c210

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

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?

Question ID ee7b1de1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: ee7b1de1

A small business owner budgets **\$2,200** to purchase candles. The owner must purchase a minimum of **200** candles to maintain the discounted pricing. If the owner pays **\$4.90** per candle to purchase small candles and **\$11.60** per candle to purchase large candles, what is the maximum number of large candles the owner can purchase to stay within the budget and maintain the discounted pricing?

Question ID c17d9ba9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: c17d9ba9

A number x is at most 17 less than 5 times the value of y . If the value of y is 3, what is the greatest possible value of x ?

Question ID 94b48cbf

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

ID: 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. $\frac{7}{2}$

Question ID 1035faea

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 1035faea

A psychologist set up an experiment to study the tendency of a person to select the first item when presented with a series of items. In the experiment, 300 people were presented with a set of five pictures arranged in random order. Each person was asked to choose the most appealing picture. Of the first 150 participants, 36 chose the first picture in the set. Among the remaining 150 participants, p people chose the first picture in the set. If more than 20% of all participants chose the first picture in the set, which of the following inequalities best describes the possible values of p ?

- A. $p > 0.20(300 - 36)$, where $p \leq 150$
- B. $p > 0.20(300 + 36)$, where $p \leq 150$
- C. $p - 36 > 0.20(300)$, where $p \leq 150$
- D. $p + 36 > 0.20(300)$, where $p \leq 150$

Question ID c5082ce3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: c5082ce3

The score on a trivia game is obtained by subtracting the number of incorrect answers from twice the number of correct answers. If a player answered 40 questions and obtained a score of 50, how many questions did the player answer correctly?

Question ID 8339793c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

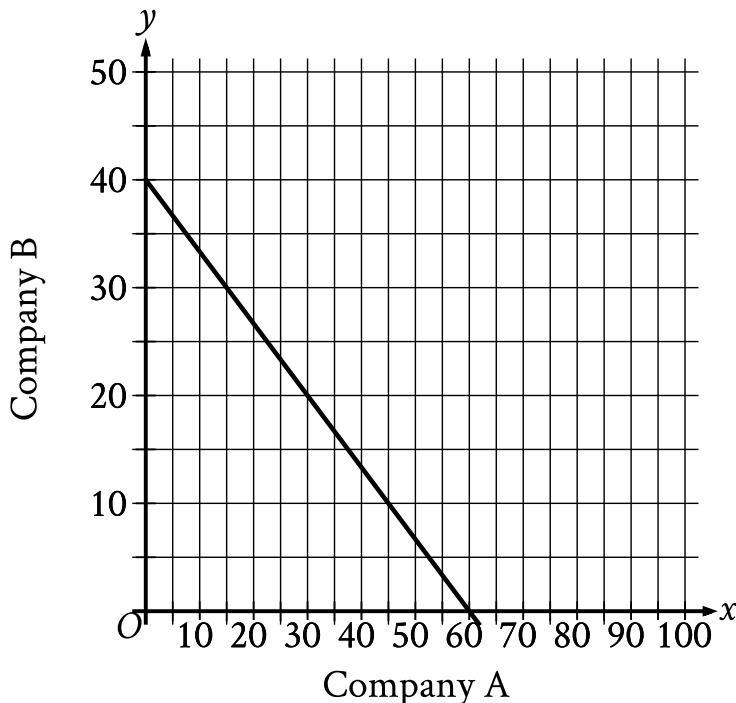
ID: 8339793c

Nasir bought **9** storage bins that were each the same price. He used a coupon for **\$63** off the entire purchase. The cost for the entire purchase after using the coupon was **\$27**. What was the original price, in dollars, for **1** storage bin?

Question ID 2e0290c3

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

ID: 2e0290c3



The graph shows the relationship between the number of shares of stock from Company A, x , and the number of shares of stock from Company B, y , that Simone can purchase. Which equation could represent this relationship?

- A. $y = 8x + 12$
- B. $8x + 12y = 480$
- C. $y = 12x + 8$
- D. $12x + 8y = 480$

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

Question ID 45a534d0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 45a534d0

$$\begin{aligned}48x - 72y &= 30y + 24 \\ry &= \frac{1}{6} - 16x\end{aligned}$$

In the given system of equations, r is a constant. If the system has no solution, what is the value of r ?

Question ID 550b352c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 550b352c

$$10 = 2x + 4$$

How many solutions exist to the equation shown above?

- A. None
- B. Exactly 1
- C. Exactly 3
- D. Infinitely many

Question ID a396ed75

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a396ed75

For a training program, Juan rides his bike at an average rate of **5.7** minutes per mile. Which function m models the number of minutes it will take Juan to ride x miles at this rate?

- A. $m(x) = \frac{x}{5.7}$
- B. $m(x) = x + 5.7$
- C. $m(x) = x - 5.7$
- D. $m(x) = 5.7x$

Question ID 50f4cb9c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 50f4cb9c

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 87071893

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 87071893

$$x + 40 = 95$$

What value of x is the solution to the given equation?

Question ID ca9bb527

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ca9bb527

$$\begin{aligned}y &= 4x - 9 \\y &= 19\end{aligned}$$

What is the solution (x, y) to the given system of equations?

- A. (4, 19)
- B. (7, 19)
- C. (19, 4)
- D. (19, 7)

Question ID 16889ef3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 16889ef3

Oil and gas production in a certain area dropped from 4 million barrels in 2000 to 1.9 million barrels in 2013. Assuming that the oil and gas production decreased at a constant rate, which of the following linear functions f best models the production, in millions of barrels, t years after the year 2000?

- A.  f of t equals, the fraction 21 over 130, end fraction, t plus 4
- B.  f of t equals, the fraction 19 over 130, end fraction, t plus 4
- C.  f of t equals, the negative fraction 21 over 130, end fraction, t plus 4
- D.  f of t equals, the negative fraction 19 over 130, end fraction, t plus 4

Question ID c651cc56

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c651cc56

x	f(x)
0	-2
2	4
6	16

Some values of the linear function f are shown in the table above. What is the value of $f(3)$?

- A. 6
- B. 7
- C. 8
- D. 9

Question ID adb0c96c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: adb0c96c

$$24x + y = 48$$

$$6x + y = 72$$

The solution to the given system of equations is (x, y) . What is the value of y ?

Question ID b4553284

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: b4553284

If $2x = 12$, what is the value of $9x$?

Question ID c22b5f25

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c22b5f25

In the xy -plane, the points $(-2, 3)$ and $(4, -5)$ lie on the graph of which of the following linear functions?

A. $f(x) = x + 5$

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

C. $f(x) = -\frac{4}{3}x + \frac{1}{3}$

D. $f(x) = -\frac{3}{2}x + 1$

Question ID d7bf55e1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

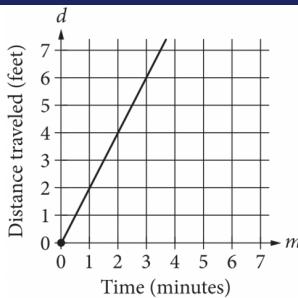
ID: d7bf55e1

A movie theater sells two types of tickets, adult tickets for \$12 and child tickets for \$8. If the theater sold 30 tickets for a total of \$300, how much, in dollars, was spent on adult tickets? (Disregard the \$ sign when gridding your answer.)

Question ID 11e1ab81

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 11e1ab81



The graph above shows the distance traveled d , in feet, by a product on a conveyor belt m minutes after the product is placed on the belt. Which of the following equations correctly relates d and m ?

- A. d equals $2m$
- B. d equals, one-half m
- C. d equals m , plus 2
- D. d equals $2m$, plus 2

Question ID 771bd0ca

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 771bd0ca

$$5(t + 3) - 7(t + 3) = 38$$

What value of t is the solution to the given equation?

Question ID 4fe4fd7c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 4fe4fd7c

$$c(x) = mx + 500$$

A company's total cost $c(x)$, in dollars, to produce x shirts is given by the function above, where m is a constant and $x > 0$. The total cost to produce 100 shirts is \$800. What is the total cost, in dollars, to produce 1000 shirts? (Disregard the \$ sign when gridding your answer.)

Question ID 789975b7

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 a309803e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a309803e

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 bf883fde

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: bf883fde

For the function f , the graph of $y = f(x)$ in the xy -plane has a slope of 3 and passes through the point $(0, -8)$. Which equation defines f ?

- A. $f(x) = 3x$
- B. $f(x) = 3x - 8$
- C. $f(x) = 3x + 5$
- D. $f(x) = 3x + 11$

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 5bf5136d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 5bf5136d

The triangle inequality theorem states that the sum of any two sides of a triangle must be greater than the length of the third side. If a triangle has side lengths of **6** and **12**, which inequality represents the possible lengths, x , of the third side of the triangle?

- A. $x < 18$
- B. $x > 18$
- C. $6 < x < 18$
- D. $x < 6$ or $x > 18$

Question ID 620abf36

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 620abf36

If $5(x + 4) = 4(x + 4) + 29$, what is the value of $x + 4$?

- A. -4
- B. 25
- C. 29
- D. 33

Question ID d62ad380

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 equals, 3 s plus 10
- B.  P equals, ten thirds s , plus 8
- C.  P equals, ten thirds s , minus 2
- D.  P equals, three tenths s , minus one tenth

Question ID ed18c4f7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: ed18c4f7

Cathy has n CDs. Gerry has 3 more than twice the number of CDs that Cathy has. In terms of n , how many CDs does Gerry have?

- A. $3n - 2$
- B. $3n + 2$
- C. $2n - 3$
- D. $2n + 3$

Question ID 52a8ef85

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

Question ID 3462d850

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 3462d850

Marisol drove 3 hours from City A to City B. The equation below estimates the distance d , in miles, Marisol traveled after driving for t hours.

 d equals 45 t

Which of the following does 45 represent in the equation?

- A. Marisol took 45 trips from City A to City B.
- B. The distance between City A and City B is 45 miles.
- C. Marisol drove at an average speed of about 45 miles per hour.
- D. It took Marisol 45 hours to drive from City A to City B.

Question ID 0d685865

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 0d685865

If $x = 7$, what is the value of $x + 20$?

- A. 13
- B. 20
- C. 27
- D. 34

Question ID 12255364

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 12255364

A gym charges its members a onetime **\$36** enrollment fee and a membership fee of **\$19** per month. If there are no charges other than the enrollment fee and the membership fee, after how many months will a member have been charged a total of **\$188** at the gym?

- A. 4
- B. 5
- C. 8
- D. 10

Question ID 092ad67d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 092ad67d

$$x + 2y = 6$$

$$x - 2y = 4$$

The solution to the given system of equations is (x, y) . What is the value of x ?

- A. 2.5
- B. 5
- C. 6
- D. 10

Question ID b82a943c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: b82a943c

If $7x = 28$, what is the value of $8x$?

- A. 21
- B. 32
- C. 168
- D. 224

Question ID 90095507

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	3

ID: 90095507

Townsend Realty Group Investments

Property address	Purchase price (dollars)	Monthly rental price (dollars)
Clearwater Lane	128,000	950
Driftwood Drive	176,000	1,310
Edgemont Street	70,000	515
Glenview Street	140,000	1,040
Hamilton Circle	450,000	3,365

The Townsend Realty Group invested in the five different properties listed in the table above. The table shows the amount, in dollars, the company paid for each property and the corresponding monthly rental price, in dollars, the company charges for the property at each of the five locations. Townsend Realty purchased the Glenview Street property and received a 40% discount off the original price along with an additional 20% off the discounted price for purchasing the property in cash. Which of the following best approximates the original price, in dollars, of the Glenview Street property?

- A. \$350,000
- B. \$291,700
- C. \$233,300
- D. \$175,000

Question ID eac739b2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: eac739b2

If $4x + 2 = 12$, what is the value of $16x + 8$?

- A. 40
- B. 48
- C. 56
- D. 60

Question ID 3122fc7b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 3122fc7b

A linear model estimates the population of a city from **1991** to **2015**. The model estimates the population was **57** thousand in **1991**, **224** thousand in **2011**, and **x** thousand in **2015**. To the nearest whole number, what is the value of **x** ?

Question ID ba79f10f

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

ID: ba79f10f

x	y
0	18
1	13
2	8

The table shows three values of x and their corresponding values of y . There is a linear relationship between x and y . Which of the following equations represents this relationship?

- A. $y = 18x + 13$
- B. $y = 18x + 18$
- C. $y = -5x + 13$
- D. $y = -5x + 18$

Question ID d9d83c02

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: d9d83c02

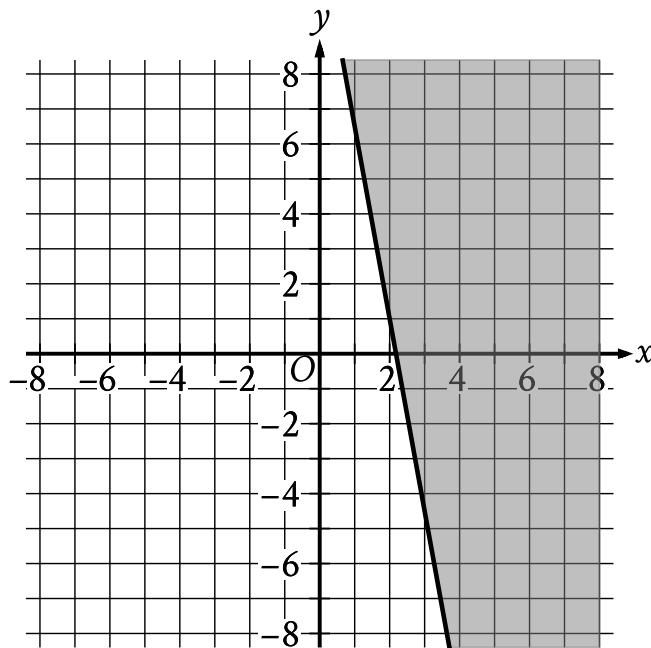
For what value of w does
 $w - 10 = 2(w + 5)$?

- A. 5
- B. 0
- C. -15
- D. -20

Question ID 59a49431

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 59a49431



The shaded region shown represents solutions to an inequality. Which ordered pair (x, y) is a solution to this inequality?

- A. $(0, -4)$
- B. $(0, 4)$
- C. $(-4, 0)$
- D. $(4, 0)$

Question ID 23dedddd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 23dedddd

In the linear function f , $f(0) = 8$ and $f(1) = 12$. Which equation defines f ?

- A. $f(x) = 12x + 8$
- B. $f(x) = 4x$
- C. $f(x) = 4x + 12$
- D. $f(x) = 4x + 8$

Question ID c8fb6bcb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c8fb6bcb

$$f(x) = 2x + 244$$

The given function f represents the perimeter, in **centimeters (cm)**, of a rectangle with a length of x **cm** and a fixed width. What is the width, in **cm**, of the rectangle?

- A. 2
- B. 122
- C. 244
- D. 488

Question ID d909cd31

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: d909cd31

$$-15x + 25y = 65$$

One of the two equations in a system of linear equations is given. The system has infinitely many solutions. Which of the following could be the second equation in the system?

- A. $12x + 20y = 52$
- B. $12x + 20y = -52$
- C. $-12x + 20y = 52$
- D. $-12x + 20y = -52$

Question ID 98d3393a

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.  negative one half
- C.  negative 2
- D. The slope of line ℓ is undefined.

Question ID f88970cc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: f88970cc

$$x = 5$$

$$y = x - 8$$

Which of the following points (x, y) is the solution to the given system of equations in the xy -plane?

- A. $(0, 0)$
- B. $(5, -3)$
- C. $(5, -8)$
- D. $(5, 8)$

Question ID 56dc8045

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 56dc8045

$$w(t) = 300 - 4t$$

The function w models the volume of liquid, in milliliters, in a container t seconds after it begins draining from a hole at the bottom. According to the model, what is the predicted volume, in milliliters, draining from the container each second?

- A. 300
- B. 296
- C. 75
- D. 4

Question ID 4f669597

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 4f669597

$$2(p+1) + 8(p-1) = 5p$$

What value of p is the solution of the equation above?

Question ID 3c4ce699

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 3c4ce699

If $6 + x = 9$, what is the value of $18 + 3x$?

Question ID f2bbd43d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: f2bbd43d

$$\begin{aligned}y &> 14 \\4x + y &< 18\end{aligned}$$

The point $(x, 53)$ is a solution to the system of inequalities in the xy -plane. Which of the following could be the value of x ?

- A. -9
- B. -5
- C. 5
- D. 9

Question ID ffb371f5

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ffb371f5

$$\begin{aligned}3x &= 12 \\ -3x + y &= -6\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of y ?

- A. **-3**
- B. **6**
- C. **18**
- D. **30**

Question ID 6989c80a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 6989c80a

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

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 c4d49134

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c4d49134

$$s = 40 + 3t$$

The equation gives the speed s , in miles per hour, of a certain car t seconds after it began to accelerate. What is the speed, in miles per hour, of the car 5 seconds after it began to accelerate?

- A. 40
- B. 43
- C. 45
- D. 55

Question ID 0cb57740

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 0cb57740

Each side of a **30**-sided polygon has one of three lengths. The number of sides with length **8 centimeters (cm)** is 5 times the number of sides **n** with length **3 cm**. There are **6** sides with length **4 cm**. Which equation must be true for the value of **n** ?

- A. $5n + 6 = 30$
- B. $6n + 6 = 30$
- C. $8n + 3n + 4n = 30$
- D. $8(5n) + 3n + 4(6) = 30$

Question ID 255996a6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 255996a6

$$T = 1,000 + 18h$$

In the equation above, T represents Brittany's total take-home pay, in dollars, for her first week of work, where h represents the number of hours she worked that week and 1,000 represents a sign-on bonus. If Brittany's total take-home pay was \$1,576, for how many hours was Brittany paid for her first week of work?

- A. 16
- B. 32
- C. 55
- D. 88

Question ID ece00725

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ece00725

Connor has c dollars and Maria has m dollars. Connor has 4 times as many dollars as Maria, and together they have a total of \$25.00. Which system of equations represents this situation?

- A. $c = 4m$
 $c + m = 25$
- B. $m = 4c$
 $c + m = 25$
- C. $c = 25m$
 $c + m = 4$
- D. $m = 25c$
 $c + m = 4$

Question ID a1696f3e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a1696f3e

The function g is defined as $g(x) = 5x + a$, where a is a constant. If $g(4) = 31$, what is the value of a ?

- A.
- B.
- C.
- D. 

Question ID c01f4a95

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: c01f4a95

$$j(x) = mx + 144$$

For the linear function j , m is a constant and $j(12) = 18$. What is the value of $j(10)$?

Question ID dfa45424

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 431c3038

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

Question ID 868fc236

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 868fc236

Energy per Gram of Typical Macronutrients

Macronutrient	Food calories	Kilojoules
Protein	4.0	16.7
Fat	9.0	37.7
Carbohydrate	4.0	16.7

The table above gives the typical amounts of energy per gram, expressed in both food calories and kilojoules, of the three macronutrients in food. If x food calories is equivalent to k kilojoules, of the following, which best represents the relationship between x and k ?

- A. $k = 0.24x$
- B. $k = 4.2x$
- C. $x = 4.2k$
- D. $xk = 4.2$

Question ID e8f9e117

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: e8f9e117

$$I = \frac{V}{R}$$

The formula above is Ohm's law for an electric circuit with current I , in amperes, potential difference V , in volts, and resistance R , in ohms. A circuit has a resistance of 500 ohms, and its potential difference will be generated by n six-volt batteries that produce a total potential difference of $6n$ volts. If the circuit is to have a current of no more than 0.25 ampere, what is the greatest number, n , of six-volt batteries that can be used?

Question ID d8539e09

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ ■

ID: d8539e09

$$y < 6x + 2$$

For which of the following tables are all the values of x and their corresponding values of y solutions to the given inequality?

A.

x	y
3	20
5	32
7	44

B.

x	y
3	16
5	36
7	40

C.

x	y
3	16
5	28
7	40

D.

x	y
3	24
5	36
7	48

Question ID ce314070

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: ce314070

If $4x - \frac{1}{2} = -5$, what is the value of $8x - 1$?

- A. 2
- B. $-\frac{9}{8}$
- C. $-\frac{5}{2}$
- D. -10

Question ID 7e1bff94

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 7e1bff94

The table gives the number of hours, h , of labor and a plumber's total charge $f(h)$, in dollars, for two different jobs.

h	$f(h)$
1	155
3	285

There is a linear relationship between h and $f(h)$. Which equation represents this relationship?

- A. $f(h) = 25h + 130$
- B. $f(h) = 130h + 25$
- C. $f(h) = 65h + 90$
- D. $f(h) = 90h + 65$

Question ID 9f6f96ff

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 9f6f96ff

A wire with a length of **106** inches is cut into two parts. One part has a length of x inches, and the other part has a length of y inches. The value of x is **6** more than **4** times the value of y . What is the value of x ?

- A. **25**
- B. **28**
- C. **56**
- D. **86**

Question ID 48fb34c8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ ■

ID: 48fb34c8

$$y > 13x - 18$$

For which of the following tables are all the values of x and their corresponding values of y solutions to the given inequality?

A.

x	y
3	21
5	47
8	86

B.

x	y
3	26
5	42
8	86

C.

x	y
3	16
5	42
8	81

D.

x	y
3	26
5	52
8	91

Question ID f718c9cf

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: f718c9cf

$$\begin{aligned}5x + 14y &= 45 \\10x + 7y &= 27\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of xy ?

Question ID 915463e0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 915463e0

Normal body temperature for an adult is between 97.8°F and 99°F , inclusive. If

Kevin, an adult male, has a body temperature that is considered to be normal,
which of the following could be his body temperature?

- A. 96.7°F
- B. 97.6°F
- C. 97.9°F
- D. 99.7°F

Question ID cc3e9528

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

ID: cc3e9528

The graph of $9x - 10y = 19$ is translated down 4 units in the xy -plane. What is the x -coordinate of the x -intercept of the resulting graph?

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/ft³), 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 ft³ of limestone, w, and the number of ft³ 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 153ee763

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 153ee763

$$-3x + 21px = 84$$

In the given equation, p is a constant. The equation has no solution. What is the value of p ?

A. 0

B. $\frac{1}{7}$

C. $\frac{4}{3}$

D. 4

Question ID 89541f9b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 89541f9b

Which of the following ordered pairs (x, y) satisfies the inequality $5x - 3y < 4$?

- 1. $(1, 1)$
- 2. $(2, 5)$
- 3. $(3, 2)$

- A. I only
- B. II only
- C. I and II only
- D. I and III only

Question ID 2875ba81

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 2875ba81

$$6x + 7y = 28$$

$$2x + 2y = 10$$

The solution to the given system of equations is (x, y) . What is the value of y ?

- A. -2
- B. 7
- C. 14
- D. 18

Question ID 265f2a53

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 $(0, \frac{86}{3})$. What is the slope of line n ?

- A. $\frac{3}{344}$
- B. $\frac{6}{43}$
- C. $\frac{43}{6}$
- D. $\frac{344}{3}$

Question ID ee031767

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: ee031767

A dance teacher ordered outfits for students for a dance recital. Outfits for boys cost \$26, and outfits for girls cost \$35. The dance teacher ordered a total of 28 outfits and spent \$881. If b represents the number of outfits the dance teacher ordered for boys and g represents the number of outfits the dance teacher ordered for girls, which of the following systems of equations can be solved to find b and g ?

- A.  Each option consists of two equations. $26b + 35g = 881$, and, $b + g = 28$
- B.  $26b + 35g = 28$, and, $b + g = 881$
- C.  $26g + 35b = 28$, and, $b + g = 881$
- D.  $26g + 35b = 881$, and, $b + g = 28$

Question ID 0cadb20e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 0cadb20e

The function f is defined by $f(x) = \frac{x+15}{5}$, and $f(a) = 10$, where a is a constant. What is the value of a ?

- A. 5
- B. 10
- C. 35
- D. 65

Question ID 466b87e3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 466b87e3

$$y = \frac{1}{2}x + 8$$

$$y = cx + 10$$

In the system of equations above, c is a constant. If the system has no solution, what is the value of c ?

Question ID ce6b52d8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: ce6b52d8

If $2(3t - 10) + t = 40 + 4t$, what is the value of $3t$?

Question ID aee9fd2d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: aee9fd2d

If $\frac{x+6}{3} = \frac{x+6}{13}$, the value of $x + 6$ is between which of the following pairs of values?

- A. -7 and -3
- B. -2 and 2
- C. 2 and 7
- D. 8 and 13

Question ID 84d0d07e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 84d0d07e

A clothing store is having a sale on shirts and pants. During the sale, the cost of each shirt is \$15 and the cost of each pair of pants is \$25. Geoff can spend at most \$120 at the store. If Geoff buys s shirts and p pairs of pants, which of the following must be true?

- A. $15s + 25p \leq 120$
- B. $15s + 25p \geq 120$
- C. $25s + 15p \leq 120$
- D. $25s + 15p \geq 120$

Question ID 7a987ae4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 7a987ae4

If $\frac{2n}{5} = 10$, what is the value of $2n - 1$?

- A. 24
- B. 49
- C. 50
- D. 99

Question ID f81a0503

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

ID: f81a0503

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. $y = 4x - 5$

Question ID 0366d965

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

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 $k+n$?

Question ID 13909d78

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 13909d78

The function f is defined by the equation $f(x) = 100x + 2$. What is the value of $f(x)$ when $x = 9$?

- A. 111
- B. 118
- C. 900
- D. 902

Question ID 10c448d6

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

ID: 10c448d6

A line in the xy -plane has a slope of $\frac{1}{9}$ and passes through the point $(0, 14)$. Which equation represents this line?

- A. $y = -\frac{1}{9}x - 14$
- B. $y = -\frac{1}{9}x + 14$
- C. $y = \frac{1}{9}x - 14$
- D. $y = \frac{1}{9}x + 14$

Question ID 7038b587

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

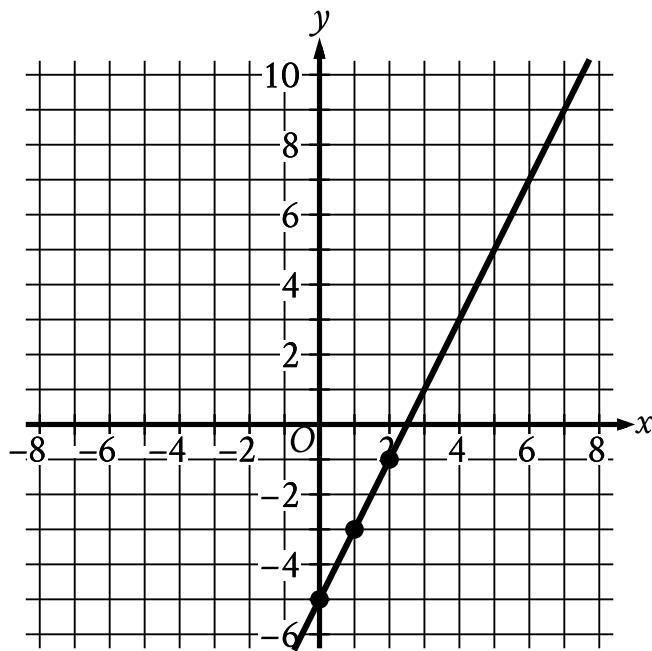
ID: 7038b587

Vivian bought party hats and cupcakes for **\$71**. Each package of party hats cost **\$3**, and each cupcake cost **\$1**. If Vivian bought **10** packages of party hats, how many cupcakes did she buy?

Question ID 4acd05cd

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

ID: 4acd05cd



The graph shows the linear relationship between x and y . Which table gives three values of x and their corresponding values of y for this relationship?

A.

x	y
0	0
1	-7
2	-9

B.

x	y
0	0
1	-3
2	-1

C.

x	y
0	-5
1	-7

2	-9
---	----

D.

x	y
0	-5
1	-3
2	-1

Question ID 963da34c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 963da34c

A shipping service restricts the dimensions of the boxes it will ship for a certain type of service. The restriction states that for boxes shaped like rectangular prisms, the sum of the perimeter of the base of the box and the height of the box cannot exceed 130 inches. The perimeter of the base is determined using the width and length of the box. If a box has a height of 60 inches and its length is 2.5 times the width, which inequality shows the allowable width x , in inches, of the box?

A. $0 < x \leq 10$

B. $0 < x \leq 11\frac{2}{3}$

C. $0 < x \leq 17\frac{1}{2}$

D. $0 < x \leq 20$

Question ID b2de69bd

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. $y = 5x$

Question ID 28c2253f

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/ft³), 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 ft³, for each of the other rock types used?

- A.  165 x , plus, 180 y , equals 670
- B.  165 x , plus, 120 y , equals, 1,000
- C.  120 x , plus, 180 y , equals 670
- D.  120 x , plus, 180 y , equals, 1,000

Question ID 042aa429

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 042aa429

If $f(x) = x + 7$ and $g(x) = 7x$, what is the value of $4f(2) - g(2)$?

- A. **-5**
- B. **1**
- C. **22**
- D. **28**

Question ID cd33b015

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: cd33b015

 Equation 1: $x + y = 20$. Equation 2: $2(x + y) + 3y = 85$.

If (x, y) is the solution to the given system of equations, what is the value of y ?

- A. 10
- B. 15
- C. 60
- D. 65

Question ID e2e3942f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: e2e3942f

$$y = 2x + 1$$

$$y = ax - 8$$

In the system of equations above, a is a constant. If the system of equations has no solution, what is the value of a ?

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

B. 0

C. 1

D. 2

Question ID f03465dc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: f03465dc

$$\begin{aligned}8x + 7y &= 9 \\24x + 21y &= 27\end{aligned}$$

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. $(r, -\frac{8r}{7} + \frac{9}{7})$
- B. $(-\frac{8r}{7} + \frac{9}{7}, r)$
- C. $(-\frac{8r}{7} + 9, \frac{8r}{7} + 27)$
- D. $(\frac{r}{3} + 9, -\frac{r}{3} + 27)$

Question ID a35c7164

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

ID: a35c7164

$$\begin{aligned}5x + 7y &= 1 \\ax + by &= 1\end{aligned}$$

In the given pair of equations, a and b are constants. The graph of this pair of equations in the xy -plane is a pair of perpendicular lines. Which of the following pairs of equations also represents a pair of perpendicular lines?

- A. $10x + 7y = 1$
 $ax - 2by = 1$
- B. $10x + 7y = 1$
 $ax + 2by = 1$
- C. $10x + 7y = 1$
 $2ax + by = 1$
- D. $5x - 7y = 1$
 $ax + by = 1$

Question ID de6fe450

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: de6fe450

On January 1, 2015, a city's minimum hourly wage was \$9.25. It will increase by \$0.50 on the first day of the year for the next 5 years. Which of the following functions best models the minimum hourly wage, in dollars, x years after January 1, 2015, where $x = 1, 2, 3, 4, 5$?

- A. $f(x) = 9.25 - 0.50x$
- B. $f(x) = 9.25x - 0.50$
- C. $f(x) = 9.25 + 0.50x$
- D. $f(x) = 9.25x + 0.50$

Question ID 03503d49

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 03503d49

A business owner plans to purchase the same model of chair for each of the **81** employees. The total budget to spend on these chairs is **\$14,000**, which includes a **7%** sales tax. Which of the following is closest to the maximum possible price per chair, before sales tax, the business owner could pay based on this budget?

- A. \$148.15
- B. \$161.53
- C. \$172.84
- D. \$184.94

Question ID 4ec95eab

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 4ec95eab

$$\begin{aligned}y &= -3x \\4x + y &= 15\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of x ?

- A. 1
- B. 5
- C. 15
- D. 45

Question ID 2d54c272

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

ID: 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?

Question ID cee5b352

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: cee5b352

The length, y , of a white whale was **162 centimeters (cm)** when it was born and increased an average of **4.8 cm** per month for the first **12** months after it was born. Which equation best represents this situation, where x is the number of months after the whale was born and y is the length, in **cm**, of the whale?

- A. $y = 162x$
- B. $y = 162x + 162$
- C. $y = 4.8x + 4.8$
- D. $y = 4.8x + 162$

Question ID 1e11190a

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 1e11190a

Store A sells raspberries for **\$5.50** per pint and blackberries for **\$3.00** per pint. Store B sells raspberries for **\$6.50** per pint and blackberries for **\$8.00** per pint. A certain purchase of raspberries and blackberries would cost **\$37.00** at Store A or **\$66.00** at Store B. How many pints of blackberries are in this purchase?

- A. 4
- B. 5
- C. 8
- D. 12

Question ID 78391fcc

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	3

ID: 78391fcc

x	-11	-10	-9	-8
$f(x)$	21	18	15	12

The table above shows some values of x and their corresponding values $f(x)$ for the linear function f . What is the x -intercept of the graph of $y = f(x)$ in the xy -plane?

- A. (-3,0)
- B. (-4,0)
- C. (-9,0)
- D. (-12,0)

Question ID 9ff10b3b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 9ff10b3b

If $\frac{1}{2}x - \frac{1}{6}x = 1$, what is the value of x ?

A. -4

B. $\frac{1}{3}$

C. 3

D. 6

Question ID e77a76ce

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: e77a76ce

Which of the following systems of linear equations has no solution?

A. $y = 6x + 3$
 $y = 6x + 9$

B. $y = 10$
 $y = 10x + 10$

C. $y = 14x + 14$
 $y = 10x + 14$

D. $x = 3$
 $y = 10$

Question ID aad7e1b9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: aad7e1b9

The function f is defined by $f(x) = \frac{1}{10}x - 2$. What is the y -intercept of the graph of $y = f(x)$ in the xy -plane?

- A. $(-2, 0)$
- B. $(0, -2)$
- C. $(0, \frac{1}{10})$
- D. $(\frac{1}{10}, 0)$

Question ID 1bc11c4e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 1bc11c4e

$$g(m) = -0.05m + 12.1$$

The given function g models the number of gallons of gasoline that remains from a full gas tank in a car after driving m miles. According to the model, about how many gallons of gasoline are used to drive each mile?

- A. 0.05
- B. 12.1
- C. 20
- D. 242.0

Question ID b3c7ca1d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: b3c7ca1d

Which of the following systems of linear equations has no solution?

- A. $x = 3$
 $y = 5$
- B. $y = 6x + 6$
 $y = 5x + 6$
- C. $y = 16x + 3$
 $y = 16x + 19$
- D. $y = 5$
 $y = 5x + 5$

Question ID 2d0e13a6

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

ID: 2d0e13a6

Line k is defined by $y = \frac{1}{4}x + 1$. Line j is parallel to line k in the xy -plane. What is the slope of j ?

Question ID b8e73b5b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: b8e73b5b

Ken is working this summer as part of a crew on a farm. He earned \$8 per hour for the first 10 hours he worked this week. Because of his performance, his crew leader raised his salary to \$10 per hour for the rest of the week. Ken saves 90% of his earnings from each week. What is the least number of hours he must work the rest of the week to save at least \$270 for the week?

- A. 38
- B. 33
- C. 22
- D. 16

Question ID 830120b0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 830120b0

$$y > 2x - 1$$

$$2x > 5$$

Which of the following consists of the y -coordinates of all the points that satisfy the system of inequalities above?

- A.  y is greater than 6
- B.  y is greater than 4
- C.  y is greater than five-halves
- D.  y is greater than three-halves

Question ID c8e0f511

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

ID: c8e0f511

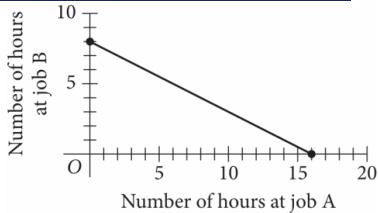
For a camping trip a group bought x one-liter bottles of water and y three-liter bottles of water, for a total of **240** liters of water. Which equation represents this situation?

- A. $x + 3y = 240$
- B. $x + y = 240$
- C. $3x + 3y = 240$
- D. $3x + y = 240$

Question ID c4ea43ef

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

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

Question ID 4e77195b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 4e77195b

If $2 + x = 60$, what is the value of $16 + 8x$?

Question ID 113b938e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 113b938e

 y equals, 18, minus 5 x

The equation above represents the speed y , in feet per second, of Sheila's bicycle x seconds after she applied the brakes at the end of a ride. If the equation is graphed in the xy -plane, which of the following is the best interpretation of the x -coordinate of the line's x -intercept in the context of the problem?

- A. The speed of Sheila's bicycle, in feet per second, before Sheila applied the brakes
- B. The number of feet per second the speed of Sheila's bicycle decreased each second after Sheila applied the brakes
- C. The number of seconds it took from the time Sheila began applying the brakes until the bicycle came to a complete stop
- D. The number of feet Sheila's bicycle traveled from the time she began applying the brakes until the bicycle came to a complete stop

Question ID 029c2dc2

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

ID: 029c2dc2

A teacher is creating an assignment worth **70** points. The assignment will consist of questions worth **1** point and questions worth **3** points. Which equation represents this situation, where x represents the number of **1**-point questions and y represents the number of **3**-point questions?

- A. $4xy = 70$
- B. $4(x + y) = 70$
- C. $3x + y = 70$
- D. $x + 3y = 70$

Question ID 2e1a7f66

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**.

Question ID 5e422ff9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 5e422ff9

y equals, 2 x minus 3, and, 3 y equals 5 x

In the solution to the system of equations above, what is the value of y ?

- A. negative 15
- B. negative 9
- C. 9
- D. 15

Question ID e744499e

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: e744499e

An elementary school teacher is ordering x workbooks and y sets of flash cards for a math class. The teacher must order at least 20 items, but the total cost of the order must not be over \$80. If the workbooks cost \$3 each and the flash cards cost \$4 per set, which of the following systems of inequalities models this situation?

- A. $x + y$, is greater than or equal to 20, and, $3x + 4y$, is less than or equal to 80
- B. $x + y$, is greater than or equal to 20, and, $3x + 4y$, is greater than or equal to 80
- C. $3x + 4y$, is less than or equal to 20, and, $x + y$, is greater than or equal to 80
- D. $x + y$, is less than or equal to 20, and, $3x + 4y$, is greater than or equal to 80

Question ID c5479c1a

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 14360f84

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 14360f84

$$\begin{aligned}4x - 9y &= 9y + 5 \\hy &= 2 + 4x\end{aligned}$$

In the given system of equations, h is a constant. If the system has no solution, what is the value of h ?

- A. -9
- B. 0
- C. 9
- D. 18

Question ID 6efcc0a3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 6efcc0a3

In the linear function h , $h(0) = 41$ and $h(1) = 40$. Which equation defines h ?

- A. $h(x) = -x + 41$
- B. $h(x) = -x$
- C. $h(x) = -41x$
- D. $h(x) = -41$

Question ID 637022d2

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

ID: 637022d2

$$2.5b + 5r = 80$$

The given equation describes the relationship between the number of birds, b , and the number of reptiles, r , that can be cared for at a pet care business on a given day. If the business cares for **16** reptiles on a given day, how many birds can it care for on this day?

- A. 0
- B. 5
- C. 40
- D. 80

Question ID 776cfa7c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 776cfa7c

Hana deposited a fixed amount into her bank account each month. The function $f(t) = 100 + 25t$ gives the amount, in dollars, in Hana's bank account after t monthly deposits. What is the best interpretation of **25** in this context?

- A. With each monthly deposit, the amount in Hana's bank account increased by **\$25**.
- B. Before Hana made any monthly deposits, the amount in her bank account was **\$25**.
- C. After **1** monthly deposit, the amount in Hana's bank account was **\$25**.
- D. Hana made a total of **25** monthly deposits.

Question ID 74c98c82

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 74c98c82

An event planner is planning a party. It costs the event planner a onetime fee of **\$35** to rent the venue and **\$10.25** per attendee. The event planner has a budget of **\$200**. What is the greatest number of attendees possible without exceeding the budget?

Question ID 36ab4122

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 36ab4122

Megan's regular wage at her job is p dollars per hour for the first 8 hours of work in a day plus 1.5 times her regular hourly wage for work in excess of 8 hours that day. On a given day, Megan worked for 10 hours, and her total earnings for that day were \$137.50. What is Megan's regular hourly wage?

- A. \$11.75
- B. \$12.50
- C. \$13.25
- D. \$13.75

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 73b5f330

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 73b5f330

The function f is defined by $f(x) = 5x + 8$. For what value of x does $f(x) = 58$?

- A. 10
- B. 13
- C. 50
- D. 298

Question ID 4f7981a0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 4f7981a0

If $3x + 2 = 8$, what is the value of $9x + 6$?

Question ID e9ef0e6b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: e9ef0e6b

A model estimates that whales from the genus *Eschrichtius* travel **72** to **77** miles in the ocean each day during their migration. Based on this model, which inequality represents the estimated total number of miles, x , a whale from the genus *Eschrichtius* could travel in **16** days of its migration?

- A. $72 + 16 \leq x \leq 77 + 16$
- B. $(72)(16) \leq x \leq (77)(16)$
- C. $72 \leq 16 + x \leq 77$
- D. $72 \leq 16x \leq 77$

Question ID c841e8e8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: c841e8e8

$$k + 12 = 336$$

What is the solution to the given equation?

- A. 28
- B. 324
- C. 348
- D. 4,032

Question ID cb58833c

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 81390d6c

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 81390d6c

The function h is defined by $h(x) = x + 200$. What is the value of $h(50)$?

- A. 200
- B. 250
- C. 10,000
- D. 50,200

Question ID 567ac7ab

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 567ac7ab

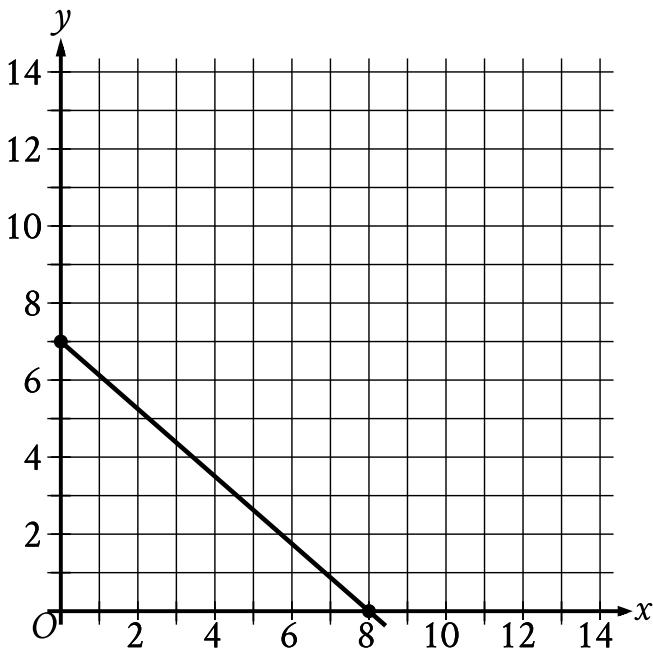
One of the two equations in a linear system is $2x + 6y = 10$. The system has no solution. Which of the following could be the other equation in the system?

- A.  x plus 3 y , equals 5
- B. $x + 3y = -20$
- C.  $6x$ minus 2 y , equals 0
- D.  $6x$ plus 2 y , equals 10

Question ID 9d0396d4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in two variables	3

ID: 9d0396d4



The point with coordinates $(d, 4)$ lies on the line shown. What is the value of d ?

- A. $\frac{7}{2}$
- B. $\frac{26}{7}$
- C. $\frac{24}{7}$
- D. $\frac{27}{8}$

Question ID 5a7ab8e8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 5a7ab8e8

$$66x = 66x$$

How many solutions does the given equation have?

- A. Exactly one
- B. Exactly two
- C. Infinitely many
- D. Zero

Question ID a04050d8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a04050d8

Energy per Gram of Typical Macronutrients

Macronutrient	Food calories	Kilojoules
Protein	4.0	16.7
Fat	9.0	37.7
Carbohydrate	4.0	16.7

The table above gives the typical amounts of energy per gram, expressed in both food calories and kilojoules, of the three macronutrients in food. If the 180 food calories in a granola bar come entirely from p grams of protein, f grams of fat, and c grams of carbohydrate, which of the following expresses f in terms of p and c ?

A. $f = 20 + \frac{4}{9}(p + c)$

B. $f = 20 - \frac{4}{9}(p + c)$

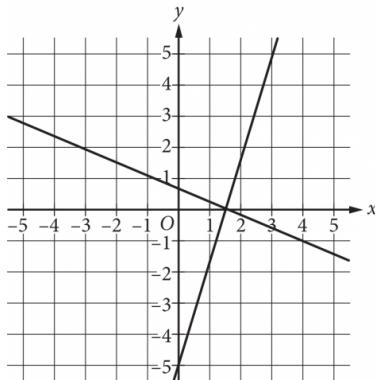
C. $f = 20 - \frac{4}{9}(p - c)$

D. $f = 20 + \frac{9}{4}(p + c)$

Question ID 2704399f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	■ ■ □

ID: 2704399f



Which of the following systems of equations has the same solution as the system of equations graphed above?

A. $y = 0$
 $x = \frac{3}{2}$

B. $y = \frac{3}{2}$
 $x = 0$

C. $y = 0$
 $x = 1$

D. $y = 1$
 $x = 0$

Question ID f02b4509

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: f02b4509

A moving truck can tow a trailer if the combined weight of the trailer and the boxes it contains is no more than **4,600** pounds. What is the maximum number of boxes this truck can tow in a trailer with a weight of **500** pounds if each box weighs **120** pounds?

- A. **34**
- B. **35**
- C. **38**
- D. **39**

Question ID daad7c32

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: daad7c32

An object hangs from a spring. The formula $\ell = 30 + 2w$ relates the length ℓ , in centimeters, of the spring to the weight w , in newtons, of the object. Which of the following describes the meaning of the 2 in this context?

- A. The length, in centimeters, of the spring with no weight attached
- B. The weight, in newtons, of an object that will stretch the spring 30 centimeters
- C. The increase in the weight, in newtons, of the object for each one-centimeter increase in the length of the spring
- D. The increase in the length, in centimeters, of the spring for each one-newton increase in the weight of the object

Question ID 3f8a701b

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 3f8a701b

The equation $9x + 5 = a(x + b)$, where a and b are constants, has no solutions. Which of the following must be true?

- I. $a = 9$
 - II. $b = 5$
 - III. $b \neq \frac{5}{9}$
- A. None
- B. I only
- C. I and II only
- D. I and III only

Question ID 0d1dca87

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 0d1dca87

$$3x + y = 29$$

$$x = 2$$

If (x, y) is the solution to the given system of equations, what is the value of y ?

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

Question ID 023c0a8d

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 023c0a8d

For the function f , if $f(3x) = x - 6$ for all values of x ,
what is the value of $f(6)$?

- A. -6
- B. -4
- C. 0
- D. 2

Question ID 686b7cad

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 686b7cad

A proposal for a new library was included on an election ballot. A radio show stated that **3** times as many people voted in favor of the proposal as people who voted against it. A social media post reported that **15,000** more people voted in favor of the proposal than voted against it. Based on these data, how many people voted against the proposal?

- A. 7,500
- B. 15,000
- C. 22,500
- D. 45,000

Question ID fbb0ea7f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: fbb0ea7f

A rocket contained **467,000** kilograms (kg) of propellant before launch. Exactly **21** seconds after launch, **362,105** kg of this propellant remained. On average, approximately how much propellant, in kg, did the rocket burn each second after launch?

- A. 4,995
- B. 17,243
- C. 39,481
- D. 104,895

Question ID 75012ee7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 75012ee7

$$\begin{aligned}2x + 3y &= 7 \\10x + 15y &= 35\end{aligned}$$

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. $(\frac{r}{5} + 7, -\frac{r}{5} + 35)$
- B. $(-\frac{3r}{2} + \frac{7}{2}, r)$
- C. $(r, \frac{2r}{3} + \frac{7}{3})$
- D. $(r, -\frac{3r}{2} + \frac{7}{2})$

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. $x - y = -3$

Question ID 90bd9ef8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 90bd9ef8

The average annual energy cost for a certain home is \$4,334. The homeowner plans to spend \$25,000 to install a geothermal heating system. The homeowner estimates that the average annual energy cost will then be \$2,712. Which of the following inequalities can be solved to find t , the number of years after installation at which the total amount of energy cost savings will exceed the installation cost?

- A.  \$25,000 is greater than, open parenthesis, 4,334 minus 2,712, close parenthesis, times t
- B.  \$25,000 is less than, open parenthesis, 4,334 minus 2,712, close parenthesis, times t
- C.  \$25,000 minus 4,334, is greater than 2,712 t
- D.  \$25,000 is greater than the fraction with numerator 4,332, and denominator 2,712, end fraction, t

Question ID c3989ef8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: c3989ef8

Henry receives a **\$60.00** gift card to pay for movies online. He uses his gift card to buy **3** movies for **\$7.50** each. If he spends the rest of his gift card balance on renting movies for **\$1.50** each, how many movies can Henry rent?

- A. **10**
- B. **25**
- C. **35**
- D. **40**

Question ID 6f6dfe3e

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

Question ID 8f0c82e2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 8f0c82e2

The minimum value of x is 12 less than 6 times another number n . Which inequality shows the possible values of x ?

- A. $x \leq 6n - 12$
- B. $x \geq 6n - 12$
- C. $x \leq 12 - 6n$
- D. $x \geq 12 - 6n$

Question ID 5ad9eff0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 5ad9eff0

The width of a rectangular dance floor is w feet. The length of the floor is 6 feet longer than its width. Which of the following expresses the perimeter, in feet, of the dance floor in terms of w ?

- A.  $2w + 6$
- B.  $4w + 12$
- C.  $w^2 + 6$
- D.  $w^2 + 6w$

Question ID 038d87d7

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

ID: 038d87d7

A neighborhood consists of a **2**-hectare park and a **35**-hectare residential area. The total number of trees in the neighborhood is **3,934**. The equation $2x + 35y = 3,934$ represents this situation. Which of the following is the best interpretation of x in this context?

- A. The average number of trees per hectare in the park
- B. The average number of trees per hectare in the residential area
- C. The total number of trees in the park
- D. The total number of trees in the residential area

Question ID 174885f8

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

ID: 174885f8

Jay walks at a speed of **3** miles per hour and runs at a speed of **5** miles per hour. He walks for w hours and runs for r hours for a combined total of **14** miles. Which equation represents this situation?

- A. $3w + 5r = 14$
- B. $\frac{1}{3}w + \frac{1}{5}r = 14$
- C. $\frac{1}{3}w + \frac{1}{5}r = 112$
- D. $3w + 5r = 112$

Question ID 441558e7

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 441558e7

Scientists collected fallen acorns that each housed a colony of the ant species *P. ohioensis* and analyzed each colony's structure. For any of these colonies, if the colony has x worker ants, the equation $y = 0.67x + 2.6$, where $20 \leq x \leq 110$, gives the predicted number of larvae, y , in the colony. If one of these colonies has 58 worker ants, which of the following is closest to the predicted number of larvae in the colony?

- A. 41
- B. 61
- C. 83
- D. 190

Question ID 46f68129

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 46f68129

A librarian has 43 books to distribute to a group of children. If he gives each child 2 books, he will have 7 books left over. How many children are in the group?

- A. 15
- B. 18
- C. 25
- D. 29

Question ID 2eef7e61

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 2eef7e61

$\frac{3}{4}$

The graph of the function f is a line in the xy -plane. If the line has slope $\frac{3}{4}$ and $f(0) = 3$, which of the following defines f ?

A. $f(x) = \frac{3}{4}x - 3$

B. $f(x) = \frac{3}{4}x + 3$

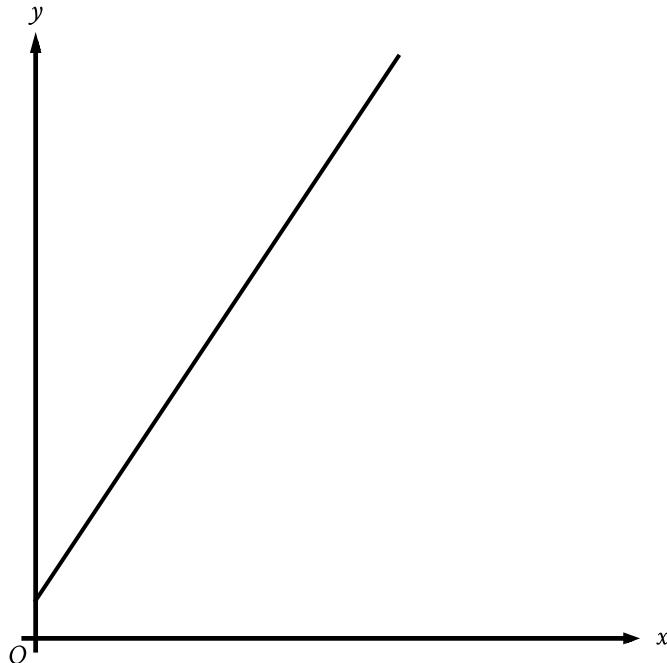
C. $f(x) = 4x - 3$

D. $f(x) = 4x + 3$

Question ID f0773a55

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	█ █ █ □

ID: f0773a55



The graph represents the total charge, in dollars, by an electrician for x hours of work. The electrician charges a onetime fee plus an hourly rate. What is the best interpretation of the slope of the graph?

- A. The electrician's hourly rate
- B. The electrician's onetime fee
- C. The maximum amount that the electrician charges
- D. The total amount that the electrician charges

Question ID 5e08a055

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 5e08a055

$$y = 6x + 18$$

One of the equations in a system of two linear equations is given. The system has no solution. Which equation could be the second equation in the system?

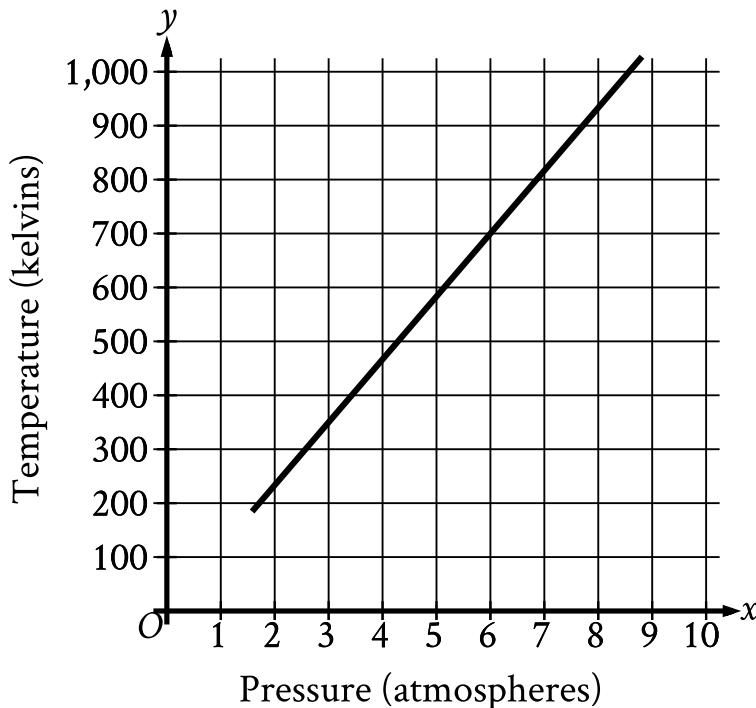
- A. $-6x + y = 18$
- B. $-6x + y = 22$
- C. $-12x + y = 36$
- D. $-12x + y = 18$

Question ID 0ea7ef01

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 0ea7ef01

Oxygen gas is placed inside a tank with a constant volume. The graph shows the estimated temperature y , in kelvins, of the oxygen gas when its pressure is x atmospheres.



What is the estimated temperature, in kelvins, of the oxygen gas when its pressure is 6 atmospheres?

- A. 6
- B. 60
- C. 700
- D. 760

Question ID 0df106df

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 0df106df

An online bookstore sells novels and magazines. Each novel sells for \$4, and each magazine sells for \$1. If Sadie purchased a total of 11 novels and magazines that have a combined selling price of \$20, how many novels did she purchase?

- A. 2
- B. 3
- C. 4
- D. 5

Question ID e53870b6

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: e53870b6

$$6x + k = 6x + 5$$

In the given equation, k is a constant. If the equation has infinitely many solutions, what is the value of k ?

Question ID a1fd2304

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?

Question ID b544a348

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: b544a348

$$5x + 3y = 38$$

$$x + 3y = 10$$

In the solution (x, y) to the system of equations

above, what is the value of x ?

Question ID 628300a9

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 628300a9

A science teacher is preparing the 5 stations of a science laboratory. Each station will have either Experiment A materials or Experiment B materials, but not both. Experiment A requires 6 teaspoons of salt, and Experiment B requires 4 teaspoons of salt. If x is the number of stations that will be set up for Experiment A and the remaining stations will be set up for Experiment B, which of the following expressions represents the total number of teaspoons of salt required?

- A. $5x$
- B. $10x$
- C. $2x + 20$
- D. $10x + 20$

Question ID 9ed4c1a2

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

ID: 9ed4c1a2

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

Question ID 45bba652

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 45bba652

If $2(x - 5) + 3(x - 5) = 10$, what is the value of $x - 5$?

- A. 2
- B. 5
- C. 7
- D. 12

Question ID b75f7812

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: b75f7812

Maria plans to rent a boat. The boat rental costs \$60 per hour, and she will also have to pay for a water safety course that costs \$10. Maria wants to spend no more than \$280 for the rental and the course. If the boat rental is available only for a whole number of hours, what is the maximum number of hours for which Maria can rent the boat?

Question ID 1ecaa9c0

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 1ecaa9c0

Robert rented a truck to transport materials he purchased from a hardware store. He was charged an initial fee of \$20.00 plus an additional \$0.70 per mile driven. If the truck was driven 38 miles, what was the total amount Robert was charged?

- A. \$46.60
- B. \$52.90
- C. \$66.90
- D. \$86.50

Question ID fb43b85f

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?

Question ID eafdbbbd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: eafdbbbd

$$\frac{1}{4}(x + 5) - \frac{1}{3}(x + 5) = -7$$

What value of x is the solution to the given equation?

- A. -12
- B. -5
- C. 79
- D. 204

Question ID 7d89376f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 7d89376f

A discount airline sells a certain number of tickets, x , for a flight for \$90 each. It sells the number of remaining tickets, y , for \$250 each. For a particular flight, the airline sold 120 tickets and collected a total of \$27,600 from the sale of those tickets. Which system of equations represents this relationship between x and y ?

- A. $\begin{cases} x+y=120 \\ 90x+250y=27,600 \end{cases}$
- B. $\begin{cases} x+y=120 \\ 90x+250y=120(27,600) \end{cases}$
- C. $\begin{cases} x+y=27,600 \\ 90x+250y=120(27,600) \end{cases}$
- D. $\begin{cases} 90x=250y \\ 120x+120y=27,600 \end{cases}$

Question ID 3ce92ce8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 3ce92ce8

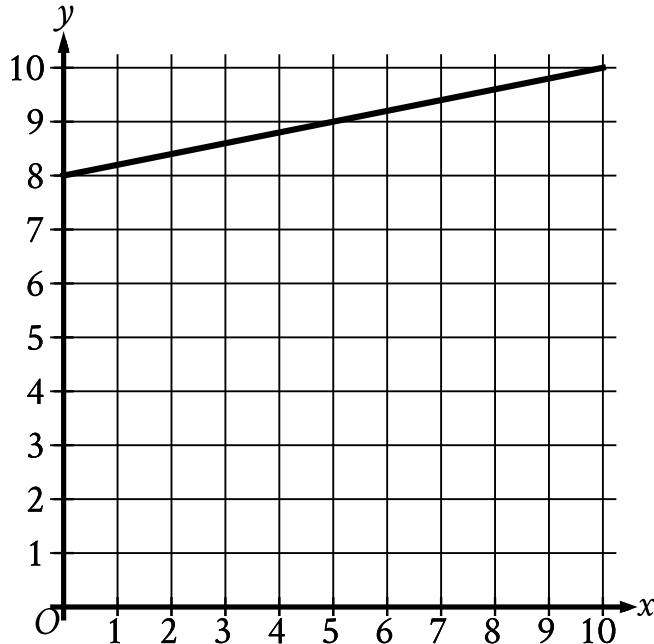
$$f(x) = 2x + 3$$

For the given function f , the graph of $y = f(x)$ in the xy -plane is parallel to line j . What is the slope of line j ?

Question ID f40552a9

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 ?

Question ID 17f176ec

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 17f176ec

A movie theater charges \$11 for each full-price ticket and \$8.25 for each reduced-price ticket. For one movie showing, the theater sold a total of 214 full-price and reduced-price tickets for \$2,145. Which of the following systems of equations could be used to determine the number of full-price tickets, f , and the number of reduced-price tickets, r , sold?

A. $f + r = 2,145$

$11f + 8.25r = 214$

B. $f + r = 214$

$11f + 8.25r = 2,145$

C. $f + r = 214$

$8.25f + 11r = 2,145$

D. $f + r = 2,145$

$8.25f + 11r = 214$

Question ID 8a6de407

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 8a6de407

The function f is defined by $f(x) = mx + b$, where m and b are constants. If

$f(0) = 18$ and $f(1) = 20$, what is the value of m ?

Question ID 8643d906

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 8643d906

$$P(t) = 250 + 10t$$

The population of snow leopards in a certain area can be modeled by the function P defined above, where $P(t)$ is the population t years after 1990. Of the following, which is the best interpretation of the equation $P(30) = 550$?

- A. The snow leopard population in this area is predicted to be 30 in the year 2020.
- B. The snow leopard population in this area is predicted to be 30 in the year 2030.
- C. The snow leopard population in this area is predicted to be 550 in the year 2020.
- D. The snow leopard population in this area is predicted to be 550 in the year 2030.

Question ID bbf9e5ce

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: bbf9e5ce

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 a4d6fbec

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

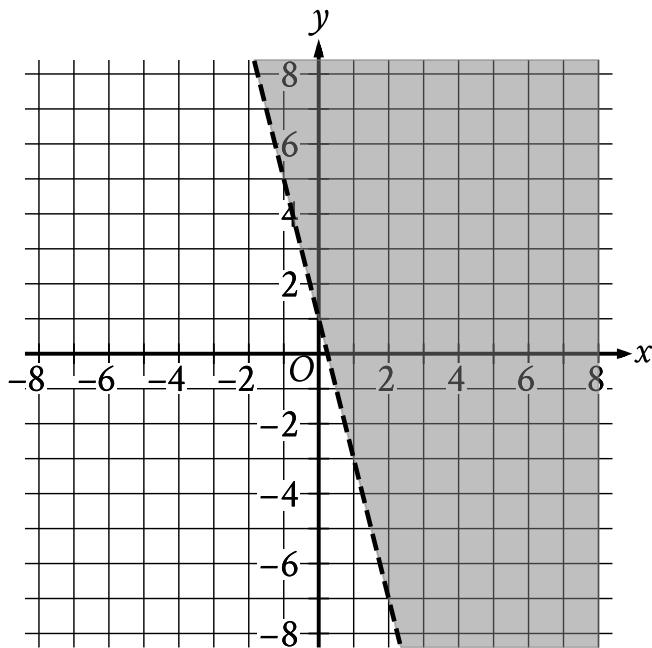
ID: a4d6fbec

If $y = 5x + 10$, what is the value of y when $x = 8$?

Question ID d02193fb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	■ ■ □

ID: d02193fb



The shaded region shown represents the solutions to which inequality?

- A. $y < 1 + 4x$
- B. $y < 1 - 4x$
- C. $y > 1 + 4x$
- D. $y > 1 - 4x$

Question ID 768b2425

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

ID: 768b2425

Last week, an interior designer earned a total of **\$1,258** from consulting for x hours and drawing up plans for y hours. The equation $68x + 85y = 1,258$ represents this situation. Which of the following is the best interpretation of **68** in this context?

- A. The interior designer earned **\$68** per hour consulting last week.
- B. The interior designer worked **68** hours drawing up plans last week.
- C. The interior designer earned **\$68** per hour drawing up plans last week.
- D. The interior designer worked **68** hours consulting last week.

Question ID e53688cb

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: e53688cb

$$\begin{aligned}x + 3y &= 29 \\3y &= 11\end{aligned}$$

The solution to the given system of equations is (x, y) . What is the value of x ?

Question ID 44d65912

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 44d65912

Angela is playing a video game. In this game, players can score points only by collecting coins and stars. Each coin is worth c points, and each star is worth s points.

- The first time she played, Angela scored 700 points. She collected 20 coins and 10 stars.
- The second time she played, Angela scored 850 points. She collected 25 coins and 12 stars.

Which system of equations can be used to correctly determine the values of c and s ?

- A.  This answer choice consists of two equations. $10c + 20s = 700$, and, $12c + 25s = 850$
- B.  This answer choice consists of two equations. $20c + 10s = 700$, and, $25c + 12s = 850$
- C.  This answer choice consists of two equations. $20c + 700s = 10$, and, $25c + 850s = 12$
- D.  This answer choice consists of two equations. $700c + 20s = 10$, and, $850c + 25s = 12$

Question ID 41fdc0b8

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 41fdc0b8

Population of Greenleaf, Idaho

Year	Population
2000	862
2010	846

The table above shows the population of Greenleaf, Idaho, for the years 2000 and 2010. If the relationship between population and year is linear, which of the following functions P models the population of Greenleaf t years after 2000?

- A. P of t equals, 862 minus 1 point 6 times t
- B. P of t equals, 862 minus 16 times t
- C. P of t equals, 862 plus 16 times, open parenthesis, t minus 2,000, close parenthesis
- D. P of t equals, 862 minus 1 point 6 times, open parenthesis, t minus 2,000, close parenthesis

Question ID 8b2a2a63

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 ?

Question ID 70774aa4

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 70774aa4

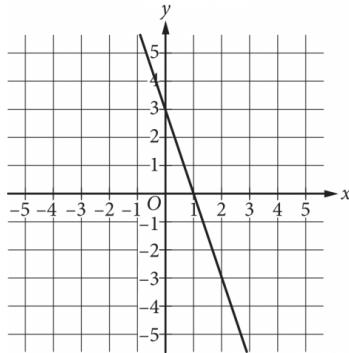
If $5x = 20$, what is the value of $15x$?

- A. 7
- B. 12
- C. 23
- D. 60

Question ID 8a1544f1

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

Question ID a9c04a21

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: a9c04a21

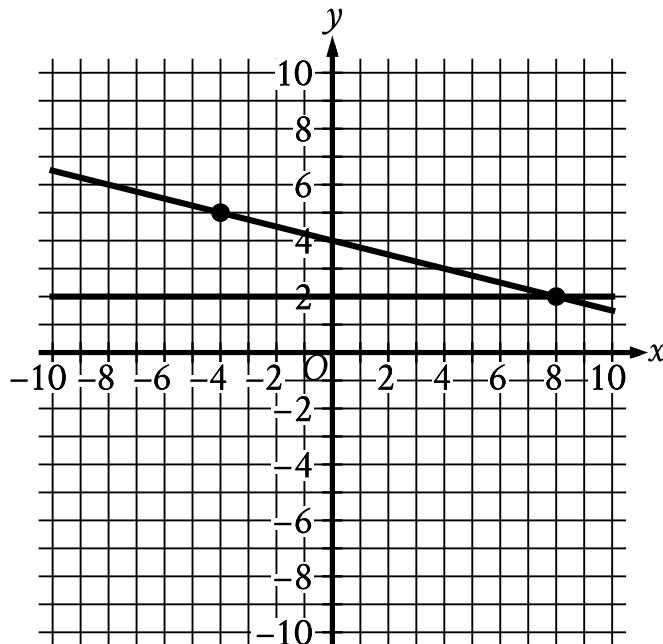
What is the solution to the equation $2x + 3 = 7$?

- A. 1
- B. 1.5
- C. 2
- D. 4

Question ID 27f5fff3

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	3

ID: 27f5fff3



If a new graph of three linear equations is created using the system of equations shown and the equation $x + 4y = -16$, how many solutions (x, y) will the resulting system of three equations have?

- A. Zero
- B. Exactly one
- C. Exactly two
- D. Infinitely many

Question ID 535fa6e6

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

Question ID a73a5c22

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a73a5c22

The function g is defined by $g(x) = 10x + 8$. What is the value of $g(x)$ when $x = 8$?

- A. 0
- B. 8
- C. 10
- D. 88

Question ID 6fa593f1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 6fa593f1

If $x = 40$, what is the value of $x + 6$?

- A. 34
- B. 40
- C. 46
- D. 64

Question ID 8c515062

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear equations in one variable	

ID: 8c515062

A candle is made of **17** ounces of wax. When the candle is burning, the amount of wax in the candle decreases by **1** ounce every **4** hours. If **6** ounces of wax remain in this candle, for how many hours has it been burning?

- A. **3**
- B. **6**
- C. **24**
- D. **44**

Question ID 4b76c7f1

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Systems of two linear equations in two variables	

ID: 4b76c7f1

$$2x + 7y = 9$$

$$8x + 28y = a$$

In the given system of equations, a is a constant. If the system has infinitely many solutions, what is the value of a ?

A. 4

B. 9

C. 36

D. 54

Question ID b64e2c7f

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: b64e2c7f

Monarch butterflies can fly only with a body temperature of at least **55.0 degrees Fahrenheit (°F)**. If a monarch butterfly's body temperature is **51.3°F**, what is the minimum increase needed in its body temperature, in °F, so that it can fly?

- A. 1.3
- B. 3.7
- C. 5.0
- D. 6.3

Question ID 7d6928bd

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 7d6928bd

A cleaning service that cleans both offices and homes can clean at most **14** places per day. Which inequality represents this situation, where f is the number of offices and h is the number of homes?

- A. $f + h \leq 14$
- B. $f + h \geq 14$
- C. $f - h \leq 14$
- D. $f - h \geq 14$

Question ID 5ad6bc97

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: 5ad6bc97

$$f(x) = 7x + 1$$

The function gives the total number of people on a company retreat with x managers. What is the total number of people on a company retreat with 7 managers?

Question ID a8e6bd75

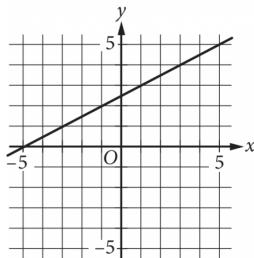
Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear functions	

ID: a8e6bd75

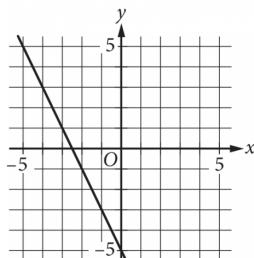
Which of the following is the graph of the equation

$$y = 2x - 5$$
 in the xy -plane?

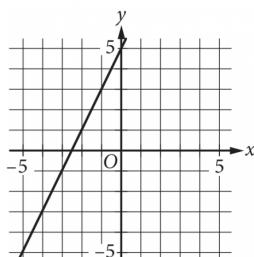
A.



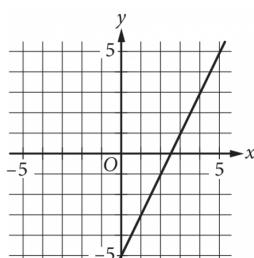
B.



C.



D.



Question ID 948087f2

Assessment	Test	Domain	Skill	Difficulty
SAT	Math	Algebra	Linear inequalities in one or two variables	

ID: 948087f2

y is less than or equal to, 3 x plus 1

x minus y is greater than 1

Which of the following ordered pairs (x, y) satisfies the system of inequalities above?

A. negative 2 comma negative 1

B. negative 1 comma 3

C. 1 comma 5

D. 2 comma negative 1