Question Bank

Math

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Systems of Linear Equations

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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. $4x+2y=86$
$3x+5y=166$

B. $4x+3y=86$
$2x+5y=166$

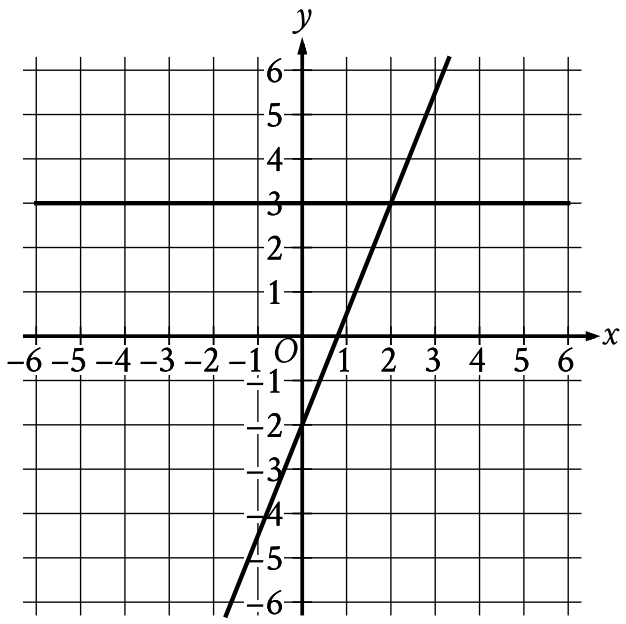
C. $4x+2y=166$
$3x+5y=86$

D. $4x+3y=166$
$2x+5y=86$

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 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. $\begin{aligned} s+p&=250 \\ 5s+12p&=2{,}300 \end{aligned}$

B. $\begin{aligned} s+p&=250 \\ 12s+5p&=2{,}300 \end{aligned}$

C. $\begin{aligned} 5s+12p&=250 \\ s+p&=2{,}300 \end{aligned}$

D. $\begin{aligned} 12s+5p&=250 \\ s+p&=2{,}300 \end{aligned}$

Question ID aff28230

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

ID: aff28230

$$x = 10$$
$$y = x + 21$$

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 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. $(2, 3)$

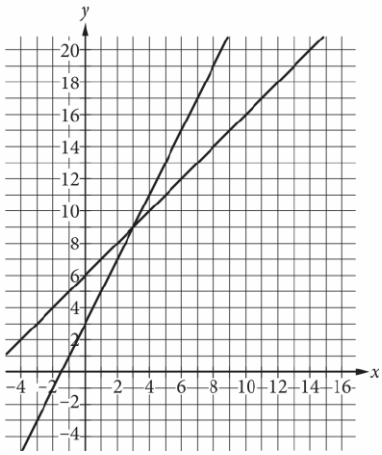
D. $(2, 7)$

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 ca9bb527

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

ID: ca9bb527

$$y = 4x - 9$$
$$y = 19$$

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 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 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. $26b + 35g = 28$
$b + g = 881$

B. $26b + 35g = 881$
$b + g = 28$

C. $26g + 35b = 28$
$b + g = 881$

D. $26g + 35b = 881$
$b + g = 28$

Question ID cd33b015

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

ID: cd33b015

$$x + y = 20$$
$$2(x + y) + 3y = 85$$

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 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 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 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 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 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. $\begin{aligned} 10c+20s&=700 \\ 12c+25s&=850 \end{aligned}$

B. $\begin{aligned} 20c+10s&=700 \\ 25c+12s&=850 \end{aligned}$

C. $\begin{aligned} 20c+700s&=10 \\ 25c+850s&=12 \end{aligned}$

D. $\begin{aligned} 700c+20s&=10 \\ 850c+25s&=12 \end{aligned}$

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 cb8f449f

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

ID: cb8f449f

$$\frac{1}{2}y = 4$$

$$x - \frac{1}{2}y = 2$$

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

A. 3

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

C. 4

D. 6

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 6e6a3241

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

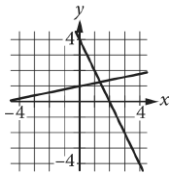
ID: 6e6a3241

$x + 5y = 5$

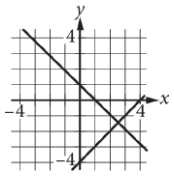
$2x - y = -4$

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

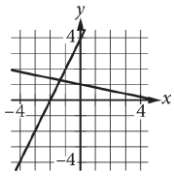
A.



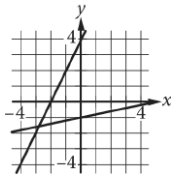
B.



C.



D.



Question ID f5929f7a

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

ID: f5929f7a

$$y = -\frac{1}{9}x$$
$$y = \frac{1}{2}x$$

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 ed92fb68

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

ID: ed92fb68

$4x + 5y = 100$

$5x + 4y = 62$

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 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 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 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 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 5e422ff9

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

ID: 5e422ff9

$$y = 2x - 3$$
$$3y = 5x$$

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

A. -15

B. -9

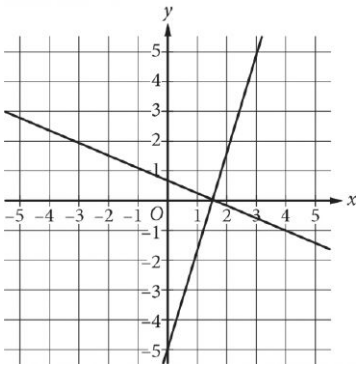
C. 9

D. 15

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 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 e53688cb

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

ID: e53688cb

$$x + 3y = 29$$
$$3y = 11$$

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

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 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 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 52cb8ea4

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

ID: 52cb8ea4

$7x-5y=4$

$4x-8y=9$

If (x,y) is the solution to the system of equations above, what is the value of $3x+3y$?

A. -13

B. -5

C. 5

D. 13

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 f718c9cf

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

ID: f718c9cf

$$5x + 14y = 45$$
$$10x + 7y = 27$$

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

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 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 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 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. $x+3y=5$

B. $x+3y=-20$

C. $6x-2y=0$

D. $6x+2y=10$