Question ID e056a89f

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

$$x = 5$$
$$y = x - 8$$

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. $(5, 8)$

Correct Answer: B

Rationale

Choice B is correct. A solution to a system of equations in the *xy*-plane is a point (x, y) that lies on the graph of each equation in the system. The first equation given is $x = 5$. Substituting 5 for x in the second given equation yields $y = 5 - 8$, or $y = -3$. It follows that in the *xy*-plane, the point $(5, -3)$ lies on the graph of each equation in the system. Therefore, the solution to the given system of equations in the *xy*-plane is $(5, -3)$.

Choice A is incorrect. The point $(0, 0)$ doesn't lie on the graph of either equation in the given system.

Choice C is incorrect. The point $(5, -8)$ doesn't lie on the graph of the second equation in the given system.
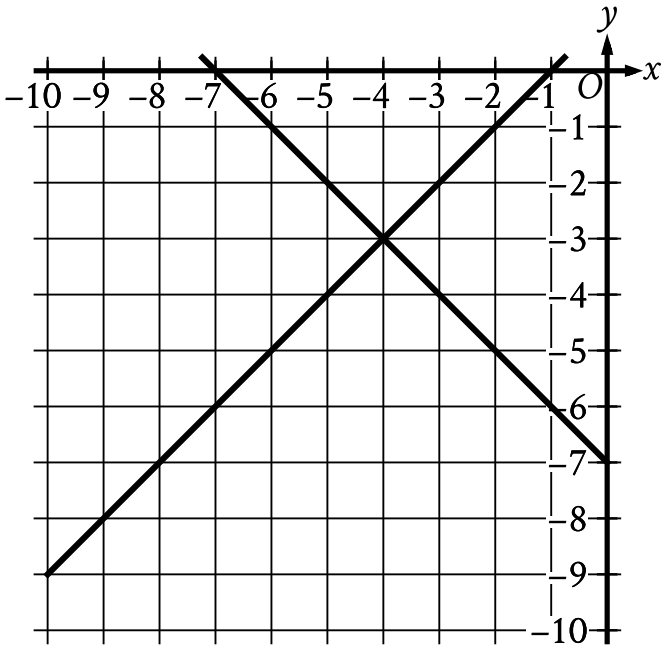
Choice D is incorrect. The point $(5, 8)$ doesn't lie on the graph of the second equation in the given system.

Question Difficulty: Easy

Question ID 1fd0aec2

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

ID: 1fd0aec2

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

A. $(0, -7)$

B. $(0, -3)$

C. $(-4, -3)$

D. $(-4, 0)$

ID: 1fd0aec2 Answer

Correct Answer: C

Rationale

Choice C is correct. The solution to a system of linear equations is represented by the point that lies on the graph of each equation in the system, or the point where the lines intersect on a graph. On the graph shown, the two lines intersect at the point $(-4, -3)$. Therefore, the solution to the system is $(-4, -3)$.

Choice A is incorrect. This is the *y*-intercept of the graph of one of the lines shown, not the intersection point of the two lines.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 96325aa9

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

$$4x = 20$$
$$-3x + y = -7$$

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

Correct Answer: C

Rationale

Choice C is correct. It's given that $4x = 20$ and $-3x + y = -7$ is a system of equations with a solution (x, y). Adding the second equation in the given system to the first equation yields $4x + (-3x + y) = 20 + (-7)$, which is equivalent to $x + y = 13$. Thus, the value of $x + y$ is 13.

Choice A is incorrect. This represents the value of $-2(x + y) - 1$.

Choice B is incorrect. This represents the value of $-(x + y)$.

Choice D is incorrect. This represents the value of $2(x + y) + 1$.

Question Difficulty: Easy

Question ID 6775509d

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

$$x + y = 18$$
$$5y = x$$

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

A. $(15, 3)$

B. $(16, 2)$

C. $(17, 1)$

D. $(18, 0)$

Correct Answer: A

Rationale

Choice A is correct. The second equation in the given system defines the value of x as $5y$. Substituting $5y$ for x into the first equation yields $5y + y = 18$ or $6y = 18$. Dividing each side of this equation by 6 yields $y = 3$. Substituting 3 for y in the second equation yields $5(3) = x$ or $x = 15$. Therefore, the solution (x, y) to the given system of equations is $(15, 3)$.

Choice B is incorrect. Substituting 16 for x and 2 for y in the second equation yields $5(2) = 16$, which is not true. Therefore, $(16, 2)$ is not a solution to the given system of equations.

Choice C is incorrect. Substituting 17 for x and 1 for y in the second equation yields $5(1) = 17$, which is not true. Therefore, $(17, 1)$ is not a solution to the given system of equations.

Choice D is incorrect. Substituting 18 for x and 0 for y in the second equation yields $5(0) = 18$, which is not true. Therefore, $(18, 0)$ is not a solution to the given system of equations.

Question Difficulty: Easy

Question ID 451f10be

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

ID: 451f10be

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

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

ID: 451f10be Answer

Correct Answer: D

Rationale

Choice D is correct. It's given by the first equation in the given system of equations that $x = 10$. Substituting 10 for x in the second equation in the given system yields $y = 10 + 21$, or $y = 31$. Therefore, the value of y is 31.

Choice A is incorrect and may result from conceptual or calculation errors.

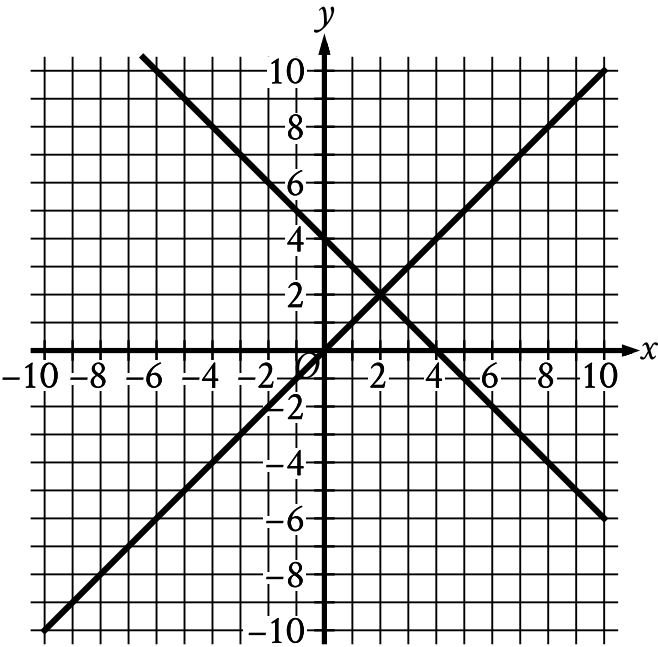Choice B is incorrect. This is the value of x, not the value of y.

Choice C is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 6db418b9

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

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

A. $(0, 4)$

B. $(2, 2)$

C. $(4, 0)$

D. $(4, 4)$

Correct Answer: B

Rationale

Choice B is correct. The solution to this system of linear equations is represented by the point that lies on both lines shown, or the point of intersection of the two lines. According to the graph, the point of intersection occurs when $x = 2$ and $y = 2$, or at the point $(2, 2)$. Therefore, the solution (x, y) to the system is $(2, 2)$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.
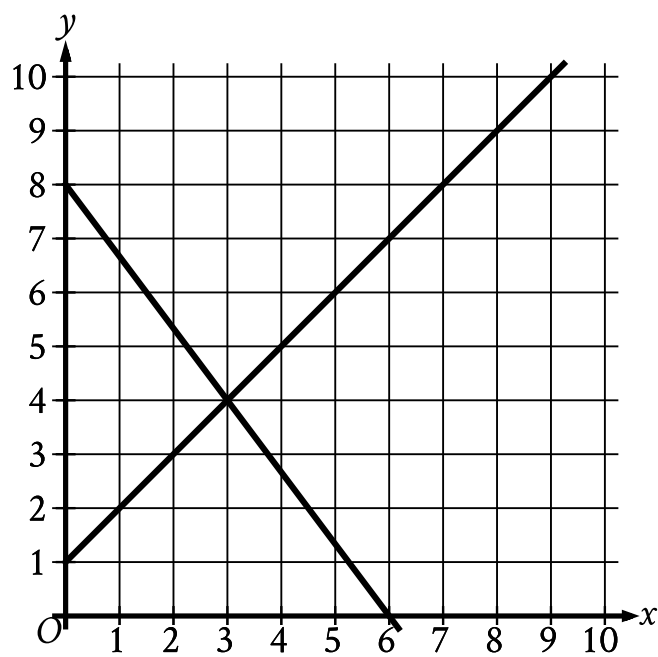
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 15c9443f

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

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

A. $(2, 3)$

B. $(3, 4)$

C. $(4, 5)$

D. $(5, 6)$

Correct Answer: B

Rationale

Choice B is correct. If a point (x, y) lies on both lines in the graph of a system of two linear equations, the ordered pair (x, y) is a solution to the system. The graph shown is the graph of a system of two linear equations, where the two lines in the graph intersect at the point $(3, 4)$. Therefore, the point $(3, 4)$ lies on both lines, so the ordered pair $(3, 4)$ is the solution to the system.

Choice A is incorrect. The point $(2, 3)$ lies on one, not both, of the lines in the graph shown.

Choice C is incorrect. The point $(4, 5)$ lies on one, not both, of the lines in the graph shown.

Choice D is incorrect. The point $(5, 6)$ lies on one, not both, of the lines in the graph shown.

Question Difficulty: Easy

Question ID 5d6fef30

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

$$s + 7r = 27$$
$$r = 3$$

What is the solution (r, s) to the given system of equations?

A. $(6, 3)$

B. $(3, 6)$

C. $(3, 27)$

D. $(27, 3)$

Correct Answer: B

Rationale

Choice B is correct. The second equation in the given system is $r = 3$. Substituting 3 for r in the first equation in the given system yields $s + 7(3) = 27$, or $s + 21 = 27$. Subtracting 21 from both sides of this equation yields $s = 6$. Therefore, the solution (r, s) to the given system of equations is $(3, 6)$.

Choice A is incorrect. This is the solution (s, r), not (r, s), to the given system of equations.

Choice C is incorrect and may result from conceptual or calculation errors.
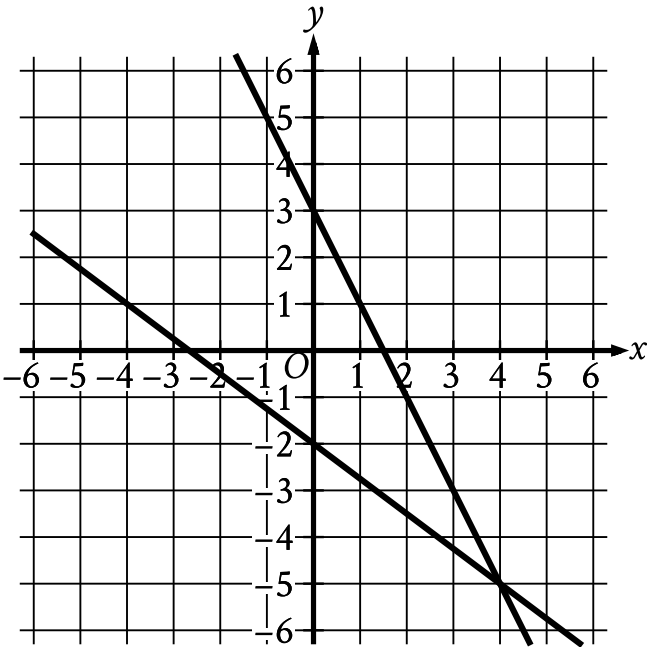
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 73a92771

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

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

A. $(4, -5)$

B. $(0, 3)$

C. $(0, -2)$

D. $(-2, 3)$

Correct Answer: A

Rationale

Choice A is correct. The solution to this system of linear equations is represented by the point that lies on both lines shown, or the point of intersection of the two lines. According to the graph, the point of intersection occurs when $x = 4$ and $y = -5$, or at the point $(4, -5)$. Therefore, the solution (x, y) to the system is $(4, -5)$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID a28c5d5e

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

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

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

A. $(4, 19)$

B. $(7, 19)$

C. $(19, 4)$

D. $(19, 7)$

Correct Answer: B

Rationale

Choice B is correct. It's given by the second equation in the system that $y = 19$. Substituting 19 for y in the first equation yields $19 = 4x - 9$. Adding 9 to both sides of this equation yields $28 = 4x$. Dividing both sides of this equation by 4 yields $7 = x$. Therefore, since $x = 7$ and $y = 19$, the solution (x, y) to the given system of equations is $(7, 19)$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 1605a215

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

ID: 1605a215

$$x = 8$$
$$x + 3y = 26$$

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

ID: 1605a215 Answer

Correct Answer: 6

Rationale

The correct answer is 6. The first equation in the given system is $x = 8$. Substituting 8 for x in the second equation in the given system yields $8 + 3y = 26$. Subtracting 8 from both sides of this equation yields $3y = 18$. Dividing both sides of this equation by 3 yields $y = 6$. Therefore, the value of y is 6.

Question Difficulty: Easy

Question ID edf8a6ae

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

ID: edf8a6ae

$$5x = 15$$
$$-4x + y = -2$$

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

ID: edf8a6ae Answer

Correct Answer: C

Rationale

Choice C is correct. Adding the second equation of the given system to the first equation yields $5x + (-4x + y) = 15 + (-2)$, which is equivalent to $x + y = 13$. So the value of $x + y$ is 13.

Choice A is incorrect and may result from conceptual or calculation errors.

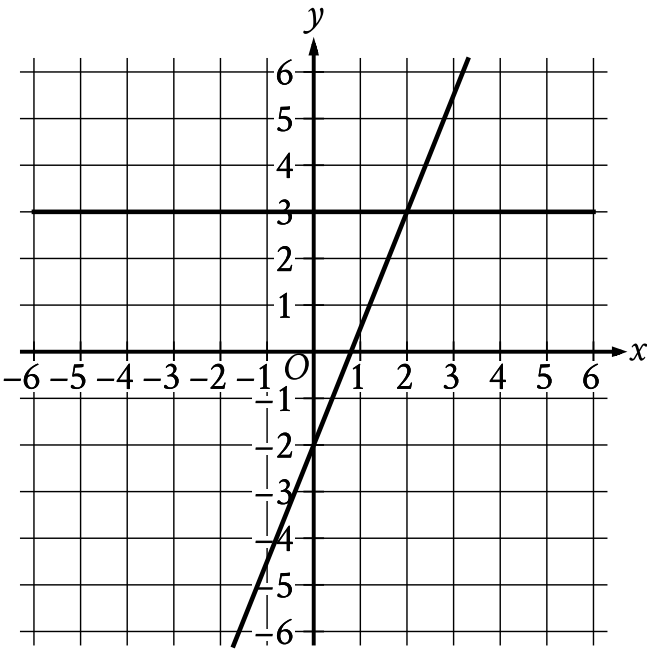Choice B is incorrect. This is the value of $-(x + y)$.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID ea278c09

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

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. $(3, 3)$

Correct Answer: C

Rationale

Choice C is correct. The solution to this system of linear equations is represented by the point that lies on both lines shown, or the point of intersection of the two lines. According to the graph, the point of intersection occurs when $x = 2$ and $y = 3$, or at the point $(2, 3)$. Therefore, the solution (x, y) to the system is $(2, 3)$.

Choice A is incorrect and may result from conceptual or calculation errors.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID ea07c5fa

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

ID: ea07c5fa

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. $m = 25c$
$c + m = 4$

ID: ea07c5fa Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that Connor has c dollars, Maria has m dollars, and Connor has 4 times as many dollars as Maria. This can be represented by the equation $c = 4m$. It's also given that together, Connor and Maria have a total of $\$25.00$, which can be represented by the equation $c + m = 25$. Therefore, the system consisting of the equations $c = 4m$ and $c + m = 25$ represents this situation.

Choice B is incorrect. The equation $m = 4c$ represents a situation where Maria has 4 times as many dollars as Connor, rather than the situation where Connor has 4 times as many dollars as Maria.

Choice C is incorrect. The equation $c = 25m$ represents a situation where Connor has 25 times, rather than 4 times, as many dollars as Maria. The equation $c + m = 4$ represents a situation where Connor and Maria together have a total of $\$4.00$, rather than $\$25.00$.

Choice D is incorrect. The equation $m = 25c$ represents a situation where Maria has 25 times as many dollars as Connor, rather than the situation where Connor has 4 times as many dollars as Maria. The equation $c + m = 4$ represents a situation where Connor and Maria together have a total of $\$4.00$, rather than $\$25.00$.

Question Difficulty: Easy

Question ID b84c49da

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

$$y = 12x - 20$$
$$y = 28$$

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

A. $(4, 28)$

B. $(20, 28)$

C. $(28, 4)$

D. $(28, 20)$

Correct Answer: A

Rationale

Choice A is correct. The second equation in the given system is $y = 28$. Substituting 28 for y in the first equation in the given system yields $28 = 12x - 20$. Adding 20 to both sides of this equation yields $48 = 12x$. Dividing both sides of this equation by 12 yields $4 = x$. Therefore, the solution (x, y) to the given system of equations is $(4, 28)$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the solution (y, x), not (x, y), to the given system of equations.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 0d1a1f0c

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

$$x = 4$$
$$y = 5 - x$$

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

A. 1

B. 4

C. 5

D. 9

Correct Answer: A

Rationale

Choice A is correct. The first equation in the given system of equations is $x = 4$. Substituting 4 for x in the second equation in the given system of equations yields $y = 5 - 4$, or $y = 1$.

Choice B is incorrect. This is the value of x in the solution to the given system of equations, not the value of y.

Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID e9e6b891

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

ID: e9e6b891

$$y = -3x$$
$$4x + y = 15$$

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

ID: e9e6b891 Answer

Correct Answer: C

Rationale

Choice C is correct. The given system of linear equations can be solved by the substitution method. Substituting $-3x$ for y from the first equation in the given system into the second equation yields $4x + (-3x) = 15$, or $x = 15$.

Choice A is incorrect and may result from conceptual or calculation errors.

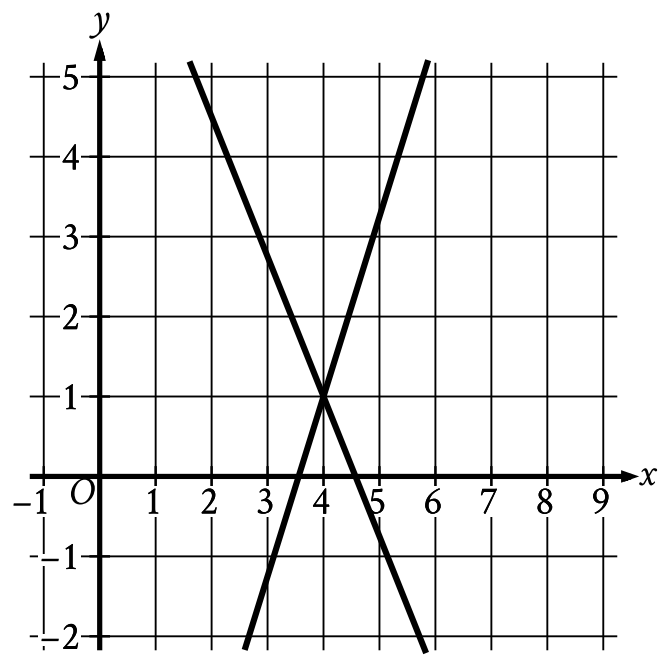Choice B is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect. This is the absolute value of y, not the value of x.

Question Difficulty: Easy

Question ID bd1bc98b

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

ID: bd1bc98b

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

ID: bd1bc98b Answer

Correct Answer: 4

Rationale

The correct answer is 4. A solution to a system of equations must satisfy each equation in the system. It follows that if (x, y) is a solution to the system, the point (x, y) lies on the graph in the xy-plane of each equation in the system. According to the graph, the point (x, y) that lies on the graph of each equation in the system is $(4, 1)$. Therefore, the solution to the system is $(4, 1)$. It follows that the value of x is 4.

Question Difficulty: Easy

Question ID 057aa645

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

ID: 057aa645

$$y = 4$$
$$x = y + 6$$

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

A. 10

B. 6

C. 4

D. 2

ID: 057aa645 Answer

Correct Answer: A

Rationale

Choice A is correct. According to the first equation in the given system, $y = 4$. Substituting 4 for y in the second equation in the given system yields $x = 4 + 6$, or $x = 10$.

Choice B is incorrect and may result from conceptual or calculation errors.

Choice C is incorrect. This is the value of y, not x.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID cfbc01f4

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

$$3x = 12$$
$$-3x + y = -6$$

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

Correct Answer: B

Rationale

Choice B is correct. Adding the second equation in the given system to the first equation in the given system yields $3x + (-3x + y) = 12 + (-6)$, which is equivalent to $y = 6$.

Choice A is incorrect and may result from conceptual or calculation errors.

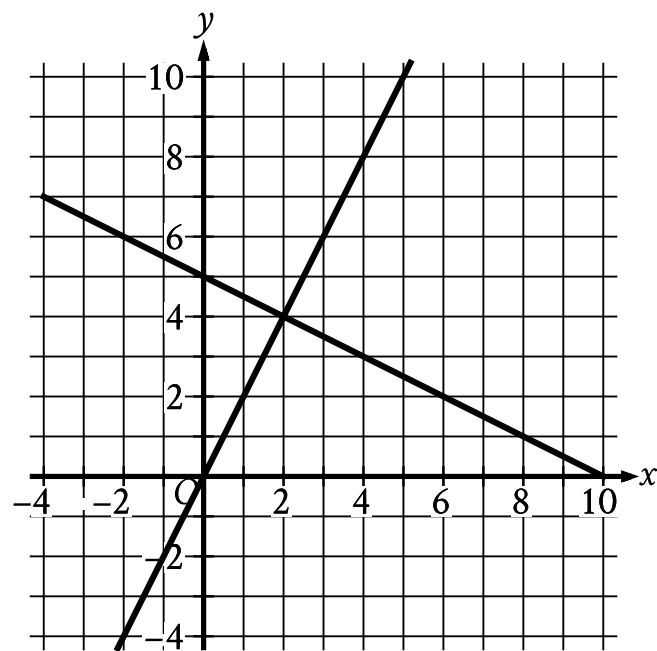Choice C is incorrect and may result from conceptual or calculation errors.

Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 773184de

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

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

A. $(0, 5)$

B. $(2, 4)$

C. $(5, 10)$

D. $(10, 0)$

Correct Answer: B

Rationale

Choice B is correct. A solution to a system of equations must be the solution to each equation in the system. It follows that if (x, y) is a solution to the system, the point (x, y) lies on the graph in the xy-plane of each equation in the system. The point that lies on each graph of the system of linear equations shown is their intersection point $(2, 4)$. Therefore, the solution to the system is $(2, 4)$.

Choice A is incorrect. The point $(0, 5)$ lies on one, but not both, of the graphs of the linear equations shown.

Choice C is incorrect. The point $(5, 10)$ lies on one, but not both, of the graphs of the linear equations shown.

Choice D is incorrect. The point $(10, 0)$ lies on one, but not both, of the graphs of the linear equations shown.

Question Difficulty: Easy