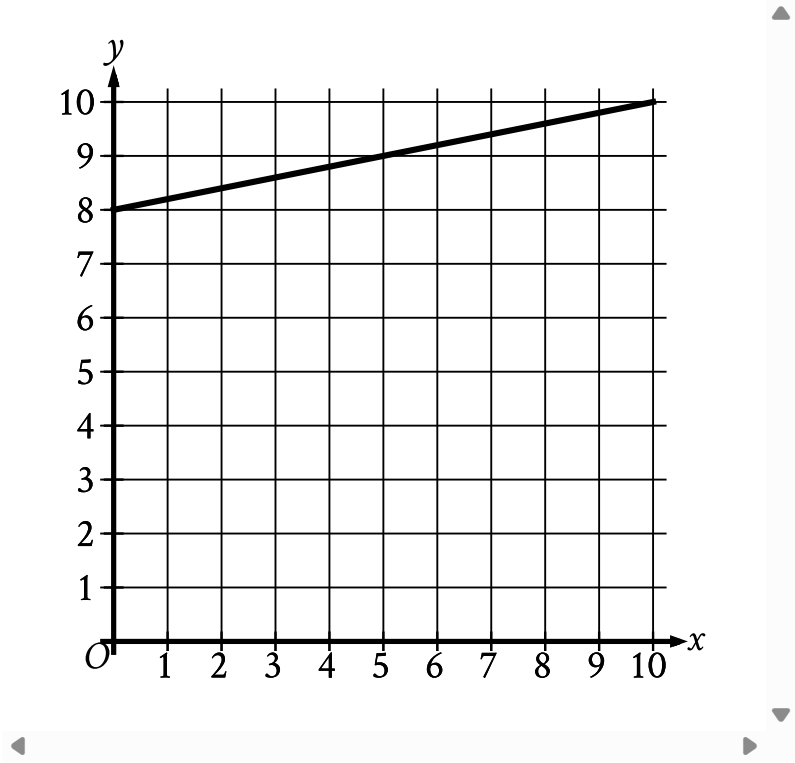


Question ID 7f86926c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: 7f86926c



What is the y-intercept of the line graphed?

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

ID: 7f86926c Answer

Correct Answer: D

Rationale

Choice D is correct. The y-intercept of a line graphed in the xy-plane is the point where the line intersects the y-axis. The line graphed intersects the y-axis at the point 0, 8. Therefore, the y-intercept of the line graphed is 0, 8.

Choice A is incorrect and may result from conceptual errors.

Choice B is incorrect and may result from conceptual errors.

Choice C is incorrect and may result from conceptual errors.

Question Difficulty: Easy

Question ID ead0173e

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: ead0173e

$$x + y = 350$$

The given equation relates the total number of maple trees, x , and the total number of birch trees, y , planted in a 14-acre forest preserve. If 245 maple trees were planted in the forest preserve, how many birch trees were planted in the forest preserve?

- A. 14
- B. 25
- C. 105
- D. 245

ID: ead0173e Answer

Correct Answer: C

Rationale

Choice C is correct. It's given that the equation $x + y = 350$ relates the total number of maple trees, x , and the total number of birch trees, y , planted in a 14-acre forest preserve. It's also given that 245 maple trees were planted in the forest preserve. Substituting 245 for x in the given equation yields $245 + y = 350$. Subtracting 245 from both sides of this equation yields $y = 105$. Therefore, 105 birch trees were planted in the forest preserve.

Choice A is incorrect. This is the number of acres in the forest preserve, not the number of birch trees planted in the forest preserve.

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

Choice D is incorrect. This is the number of maple trees planted in the forest preserve, not the number of birch trees planted in the forest preserve.

Question Difficulty: Easy

Question ID 49265c51

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: 49265c51

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**

ID: 49265c51 Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that the shipment consists of 5-pound boxes and 10-pound boxes with a total weight of 220 pounds. Let x represent the number of 5-pound boxes and y represent the number of 10-pound boxes in the shipment. Therefore, the equation $5x + 10y = 220$ represents this situation. It's given that there are 13 10-pound boxes in the shipment. Substituting 13 for y in the equation $5x + 10y = 220$ yields $5x + 10(13) = 220$, or $5x + 130 = 220$. Subtracting 130 from both sides of this equation yields $5x = 90$. Dividing both sides of this equation by 5 yields 18. Thus, there are 18 5-pound boxes in the shipment.

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

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

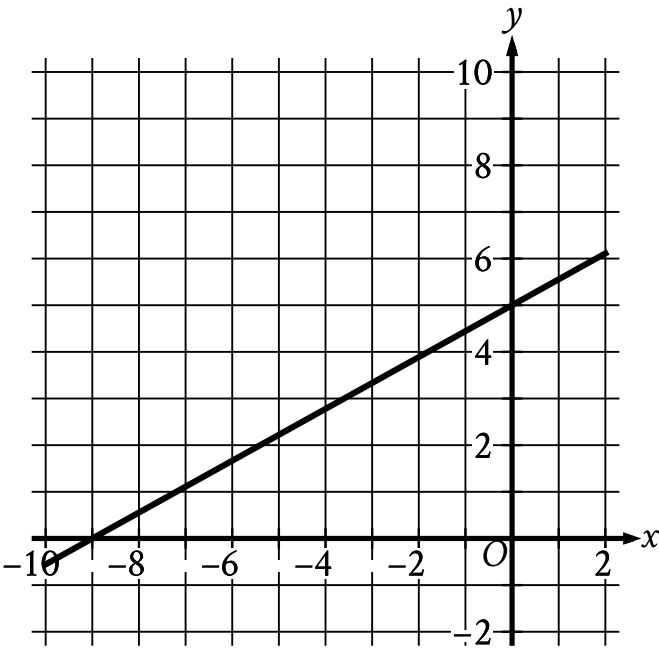
Choice C is incorrect. This is the number of 10-pound boxes in the shipment.

Question Difficulty: Easy

Question ID 4a994b33

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: 4a994b33



What is the y-intercept of the line graphed?

- A. $(-5, 0)$
- B. $(0, 0)$
- C. $(0, 5)$
- D. $(0, 9)$

ID: 4a994b33 Answer

Correct Answer: C

Rationale

Choice C is correct. The y-intercept of a graph is the point where the graph intersects the y-axis. The line graphed intersects the y-axis at the point 0, 5. Therefore, the y-intercept of the line graphed is 0, 5.

Choice A is incorrect and may result from conceptual errors.

Choice B is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

Question Difficulty: Easy

Question ID 9d1b9f40

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: 9d1b9f40

A line in the xy -plane has a slope of $-\frac{1}{2}$ and passes through the point $(0, 3)$. Which equation represents this line?

- A. $y = -\frac{1}{2}x - 3$
- B. $y = -\frac{1}{2}x + 3$
- C. $y = \frac{1}{2}x - 3$
- D. $y = \frac{1}{2}x + 3$

ID: 9d1b9f40 Answer

Correct Answer: B

Rationale

Choice B is correct. A line in the xy -plane with a slope of m and a y -intercept of $0, b$ can be represented by the equation $y = mx + b$. It's given that the line has a slope of $-\frac{1}{2}$. Therefore, $m = -\frac{1}{2}$. It's also given that the line passes through the point $0, 3$. Therefore, $b = 3$. Substituting $-\frac{1}{2}$ for m and 3 for b in the equation $y = mx + b$ yields $y = -\frac{1}{2}x + 3$. Therefore, the equation $y = -\frac{1}{2}x + 3$ represents this line.

Choice A is incorrect. This equation represents a line in the xy -plane that passes through the point $0, -3$, not $0, 3$.

Choice C is incorrect. This equation represents a line in the xy -plane that has a slope of $\frac{1}{2}$, not $-\frac{1}{2}$, and passes through the point $0, -3$, not $0, 3$.

Choice D is incorrect. This equation represents a line in the xy -plane that has a slope of $\frac{1}{2}$, not $-\frac{1}{2}$.

Question Difficulty: Easy

Question ID b6813d2f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: b6813d2f

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. $30.7x + 24.3y = 46.1$

ID: b6813d2f Answer

Correct Answer: B

Rationale

Choice B is correct. It’s given that the employee takes 1.5 minutes to prepare a sandwich. Multiplying 1.5 by the number of sandwiches, x , yields $1.5x$, the amount of time the employee spends preparing x sandwiches. It’s also given that the employee takes 1.9 minutes to prepare a salad. Multiplying 1.9 by the number of salads, y , yields $1.9y$, the amount of time the employee spends preparing y salads. It follows that the total amount of time, in minutes, the employee spends preparing x sandwiches and y salads is $1.5x + 1.9y$. It's given that the employee spends a total of 46.1 minutes preparing x sandwiches and y salads. Thus, the equation $1.5x + 1.9y = 46.1$ represents this situation.

Choice A is incorrect. This equation represents a situation where it takes the employee 1.9 minutes, rather than 1.5 minutes, to prepare a sandwich and 1.5 minutes, rather than 1.9 minutes, to prepare a salad.

Choice C is incorrect. This equation represents a situation where it takes the employee 1 minute, rather than 1.5 minutes, to prepare a sandwich and 1 minute, rather than 1.9 minutes, to prepare a salad.

Choice D is incorrect. This equation represents a situation where it takes the employee 30.7 minutes, rather than 1.5 minutes, to prepare a sandwich and 24.3 minutes, rather than 1.9 minutes, to prepare a salad.

Question Difficulty: Easy

Question ID df458911

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: df458911

A mixture consisting of only vitamin D and calcium has a total mass of **150** grams. The mass of vitamin D in the mixture is **50** grams. What is the mass, in grams, of calcium in the mixture?

- A. 200
- B. 150
- C. 100
- D. 50

ID: df458911 Answer

Correct Answer: C

Rationale

Choice C is correct. Let d represent the mass, in grams, of vitamin D in the mixture, and let c represent the mass, in grams, of calcium in the mixture. It's given that the mixture consists of only vitamin D and calcium and that the total mass of the mixture is 150 grams. Therefore, the equation $d + c = 150$ represents this situation. It's also given that the mass of vitamin D in the mixture is 50 grams. Substituting 50 for d in the equation $d + c = 150$ yields $50 + c = 150$. Subtracting 50 from both sides of this equation yields $c = 100$. Therefore, the mass of calcium in the mixture is 100 grams.

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

Choice B is incorrect. This is the total mass, in grams, of the mixture, not the mass, in grams, of calcium in the mixture.

Choice D is incorrect. This is the mass, in grams, of vitamin D in the mixture, not the mass, in grams, of calcium in the mixture.

Question Difficulty: Easy

Question ID 8a41c9f5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Algebra	Linear equations in two variables	Easy

ID: 8a41c9f5

$y = x + 4$

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

ID: 8a41c9f5 Answer

Correct Answer: A

Rationale

Choice A is correct. Substituting 0 for x into the given equation yields $y = 0 + 4$, or $y = 4$. Therefore, when $x = 0$, the corresponding value of y for the given equation is 4. Substituting 1 for x into the given equation yields $y = 1 + 4$, or $y = 5$. Therefore, when $x = 1$, the corresponding value of y for the given equation is 5. Substituting 2 for x into the given

equation yields $y = 2 + 4$, or $y = 6$. Therefore, when $x = 2$, the corresponding value of y for the given equation is 6. Of the choices given, only the table in choice A gives these three values of x and their corresponding values of y for the given equation.

Choice B is incorrect. This table gives three values of x and their corresponding values of y for the equation $y = -x + 6$.

Choice C is incorrect. This table gives three values of x and their corresponding values of y for the equation $y = -x + 2$.

Choice D is incorrect. This table gives three values of x and their corresponding values of y for the equation $y = x$.

Question Difficulty: Easy