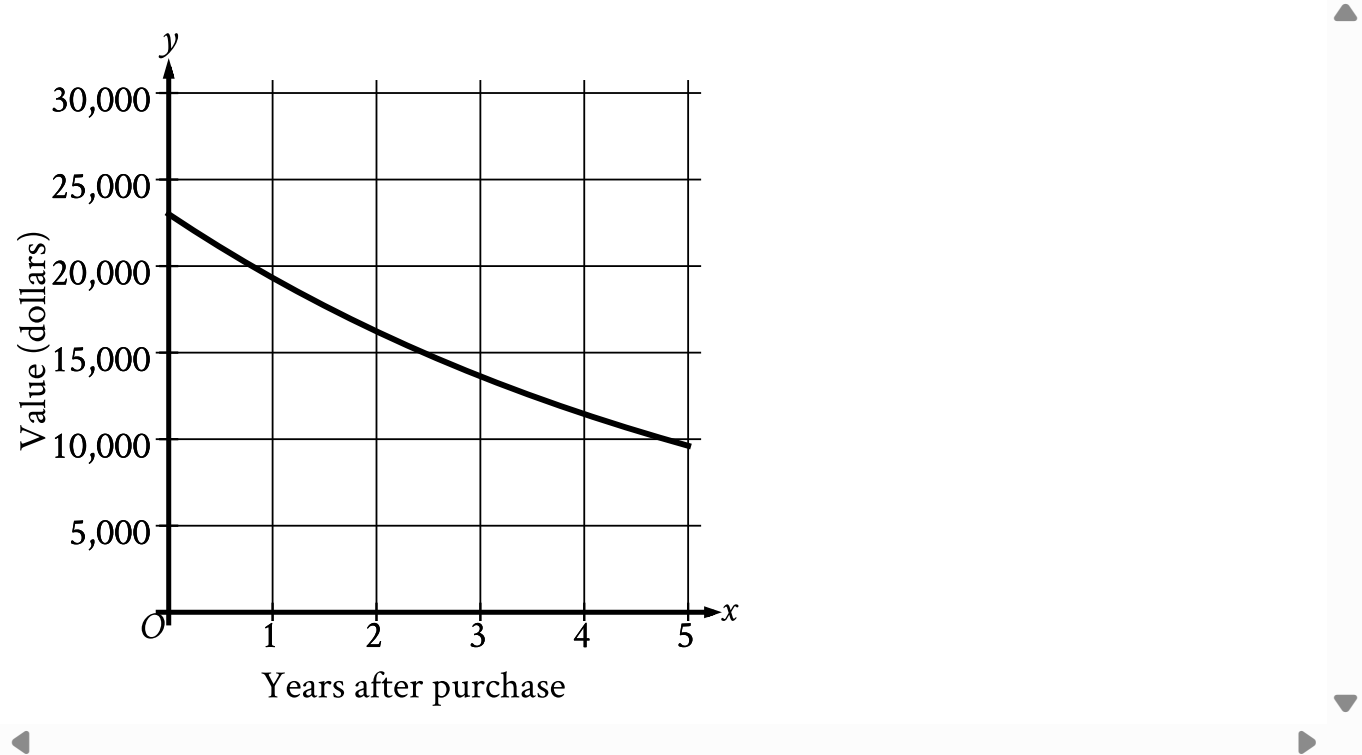


Question ID cc2a1d30

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: cc2a1d30

The graph shows the predicted value y , in dollars, of a certain sport utility vehicle x years after it is first purchased.



Which of the following is closest to the predicted value of the sport utility vehicle 3 years after it is first purchased?

- A. \$9,619
- B. \$13,632
- C. \$19,320
- D. \$23,000

ID: cc2a1d30 Answer

Correct Answer: B

Rationale

Choice B is correct. For the graph shown, the horizontal axis represents the number of years after a certain sport utility vehicle is first purchased, and the vertical axis represents the predicted value, in dollars, of the sport utility vehicle. According to the graph, 3 years after the sport utility vehicle is purchased, the predicted value of the sport utility vehicle is between \$ 10,000 and \$ 15,000. Of the given choices, only \$ 13,632 is between \$ 10,000 and \$ 15,000. Therefore, \$ 13,632 is closest to the predicted value of the sport utility vehicle 3 years after it is first purchased.

Choice A is incorrect. This is closest to the predicted value of the sport utility vehicle 5 years after it is first purchased.

Choice C is incorrect. This is closest to the predicted value of the sport utility vehicle 1 year after it is first purchased.

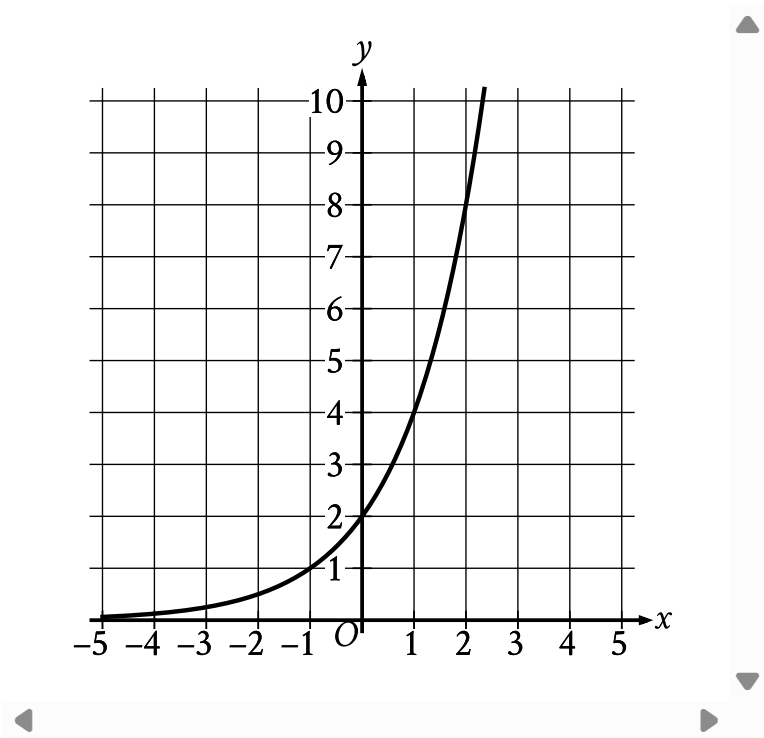
Choice D is incorrect. This is closest to the predicted value of the sport utility vehicle when it is first purchased.

Question Difficulty: Easy

Question ID 8c6835c1

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 8c6835c1



What is the y-intercept of the graph shown?

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

ID: 8c6835c1 Answer

Correct Answer: B

Rationale

Choice B is correct. The y-intercept of a graph in the xy -plane is the point at which the graph crosses the y -axis. The graph shown crosses the y -axis at the point $0, 2$. Therefore, the y-intercept of the graph shown is $0, 2$.

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 2eea7b52

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 2eea7b52

The function f is defined by $f(x) = \frac{16}{x}$. What is the value of $f(x)$ when $x = 17$?

- A. $\frac{16}{17}$
- B. $\frac{17}{16}$
- C. 16
- D. 17

ID: 2eea7b52 Answer

Correct Answer: A

Rationale

Choice A is correct. It's given that $fx = \frac{16}{x}$. Substituting 17 for x in this function yields $f17 = \frac{16}{17}$. Therefore, when $x = 17$, the value of fx is $\frac{16}{17}$.

Choice B is incorrect. This is the value of the reciprocal of fx when $x = 17$.

Choice C is incorrect. This is the value of fx when $x = 1$.

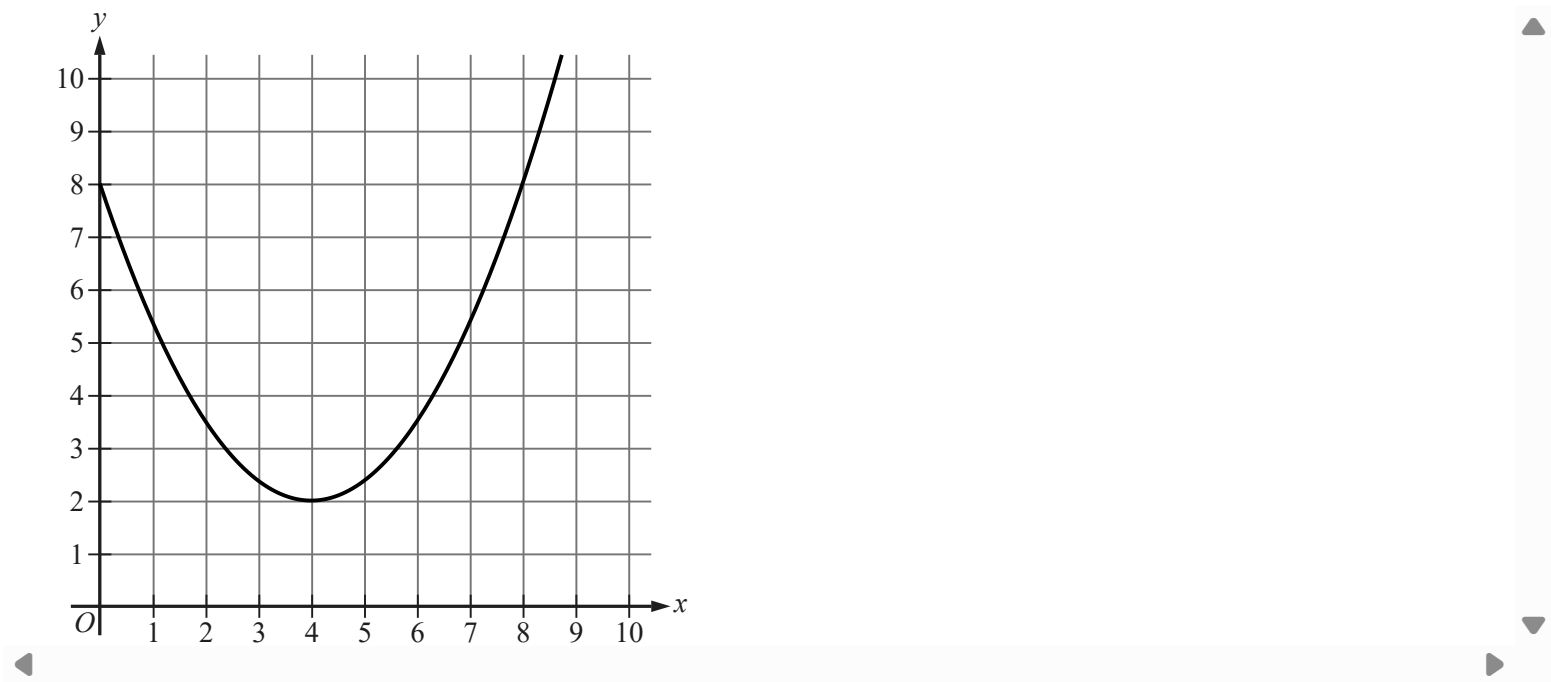
Choice D is incorrect. This is the value of x when $x = 17$.

Question Difficulty: Easy

Question ID 2727dcca

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 2727dcca



The graph shows a marble's height above the ground y , in inches, x seconds after it started moving on an elevated track of a marble run. Which of the following is the best interpretation of the y -intercept of the graph?

- A. The marble's height was 0 inches above the ground 8 seconds after it started moving.
- B. The marble's height was 8 inches above the ground when it started moving.
- C. The marble's minimum height was 0 inches above the ground.
- D. The marble's minimum height was 8 inches above the ground.

ID: 2727dcca Answer

Correct Answer: B

Rationale

Choice B is correct. The y -intercept of a graph is the point at which the graph intersects the y -axis. The graph shown intersects the y -axis at the point $(0, 8)$. Therefore, the y -intercept of the graph is $(0, 8)$. It's given that y is the height of the marble above the ground, in inches, and x is the number of seconds after the marble started moving. It follows that the marble's height was 8 inches above the ground 0 seconds after it started moving. Therefore, the best interpretation of the y -intercept of the graph is that the marble's height was 8 inches above the ground when it started moving.

Choice A is incorrect and may result from conceptual errors.

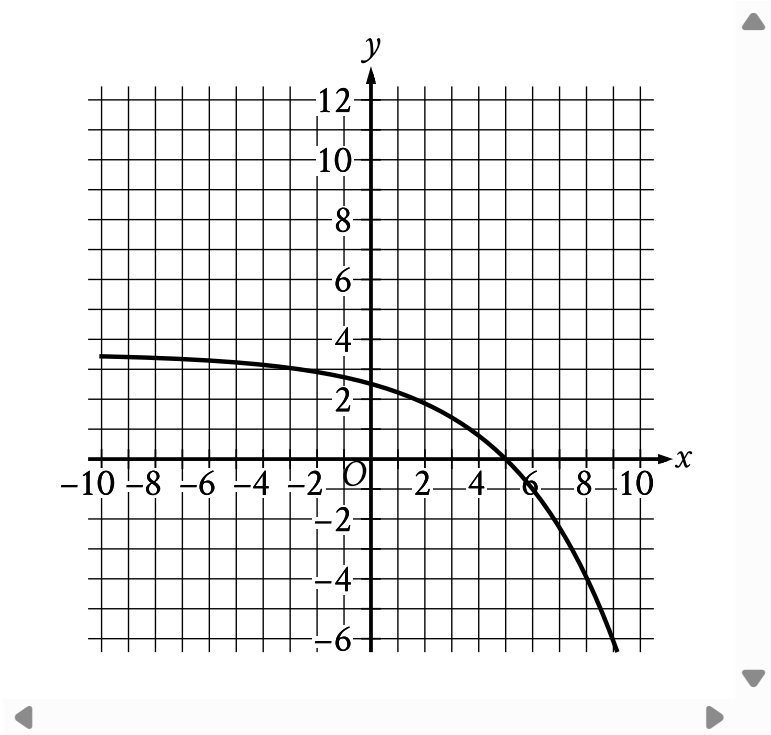
Choice C is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

Question ID 1198f87c

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 1198f87c



What is the x-intercept of the graph shown?

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

ID: 1198f87c Answer

Correct Answer: B

Rationale

Choice B is correct. An x-intercept of a graph in the xy-plane is a point at which the graph crosses the x-axis. The graph shown crosses the x-axis at the point 5, 0. Therefore, the x-intercept of the graph shown is 5, 0.

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

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

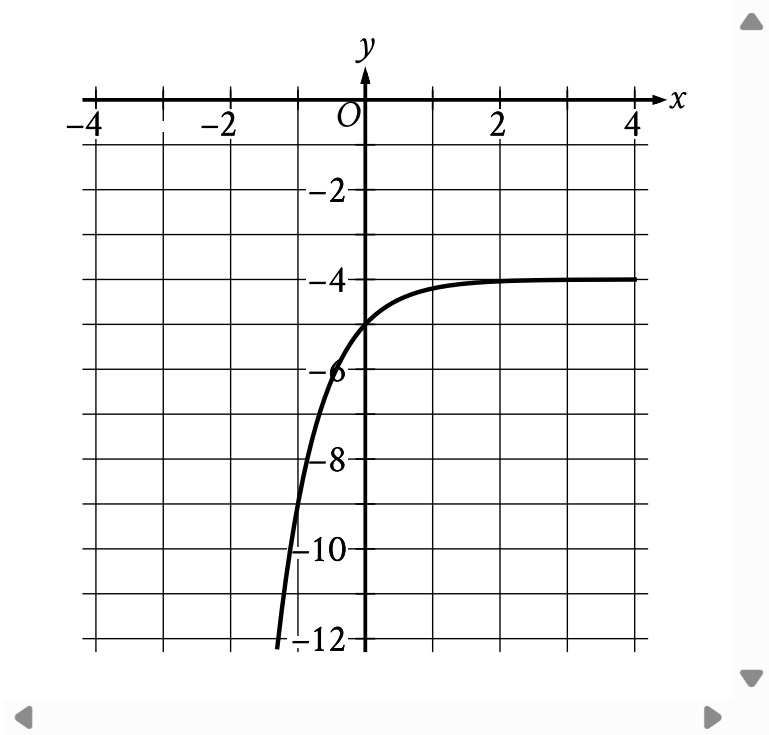
Choice D is incorrect and may result from conceptual or calculation errors.

Question Difficulty: Easy

Question ID 4e022767

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 4e022767



What is the y -intercept of the graph shown?

- A. $(-1, -9)$
- B. $(0, -5)$
- C. $(0, -4)$
- D. $(0, 0)$

ID: 4e022767 Answer

Correct Answer: B

Rationale

Choice B is correct. The y -intercept of a graph in the xy -plane is the point x, y on the graph where $x = 0$. At $x = 0$, the corresponding value of y is -5 . Therefore, the y -intercept of the graph shown is $0, -5$.

Choice A is incorrect and may result from conceptual errors.

Choice C is incorrect. This is the y -intercept of a graph in the xy -plane that intersects the y -axis at $y = -4$, not $y = -5$.

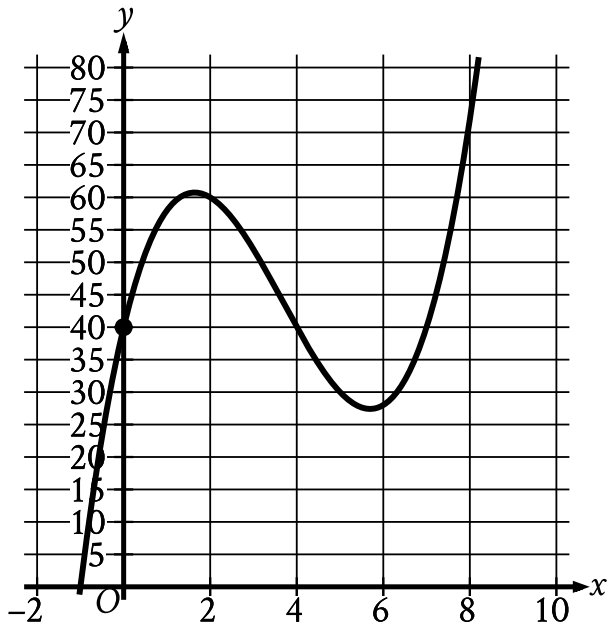
Choice D is incorrect. This is the y -intercept of a graph in the xy -plane that intersects the y -axis at $y = 0$, not $y = -5$.

Question Difficulty: Easy

Question ID 6a2300cc

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 6a2300cc



The y -intercept of the graph shown is (x, y) . What is the value of y ?

ID: 6a2300cc Answer

Correct Answer: 40

Rationale

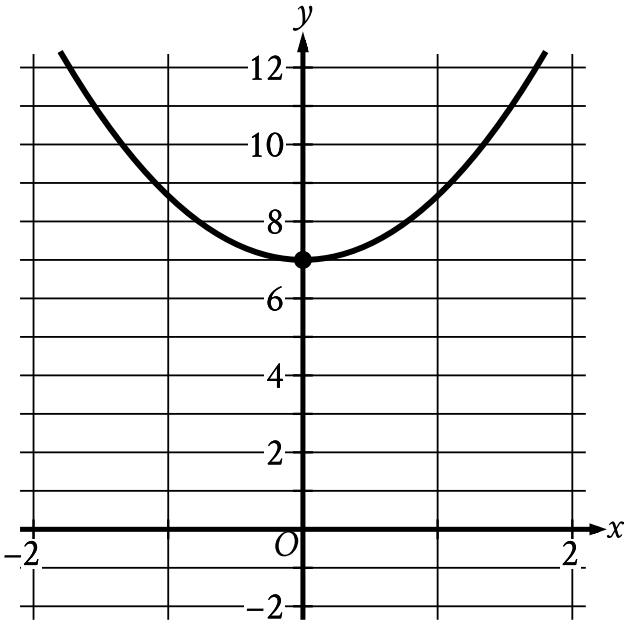
The correct answer is 40. The y -intercept of a graph in the xy -plane is the point x, y on the graph where $x = 0$. The y -intercept of the graph shown is $0, 40$. Therefore, the value of y is 40.

Question Difficulty: Easy

Question ID 133d2cae

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 133d2cae



The parabola shown intersects the y -axis at the point (x, y) . What is the value of y ?

ID: 133d2cae Answer

Correct Answer: 7

Rationale

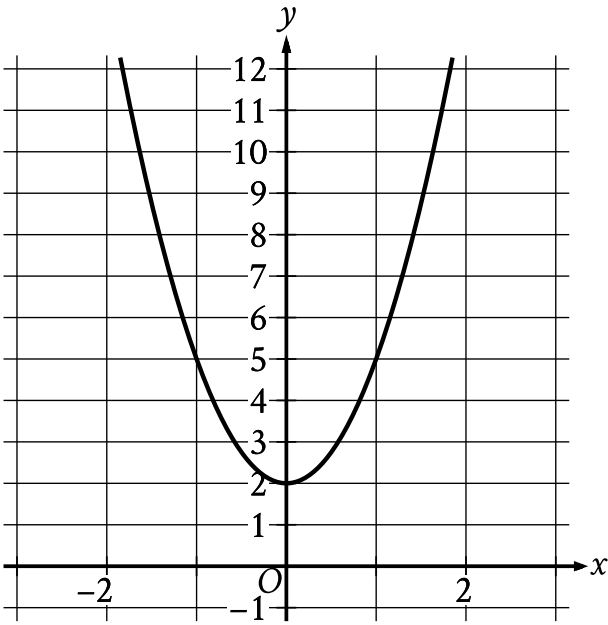
The correct answer is 7. It's given that the parabola intersects the y -axis at the point x, y . The graph shows that the parabola intersects the y -axis at the point $0, 7$. Therefore, the value of y is 7.

Question Difficulty: Easy

Question ID 0fbd30a3

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 0fbd30a3



The graph of the quadratic function $y = f(x)$ is shown. What is the vertex of the graph?

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

ID: 0fbd30a3 Answer

Correct Answer: C

Rationale

Choice C is correct. The vertex of the graph of a quadratic function in the xy -plane is the point at which the graph is either at its minimum or maximum y -value. In the graph shown, the minimum y -value occurs at the point $0, 2$.

Choice A is incorrect. The graph shown doesn't pass through the point $0, -2$.

Choice B is incorrect. The graph shown doesn't pass through the point $0, -3$.

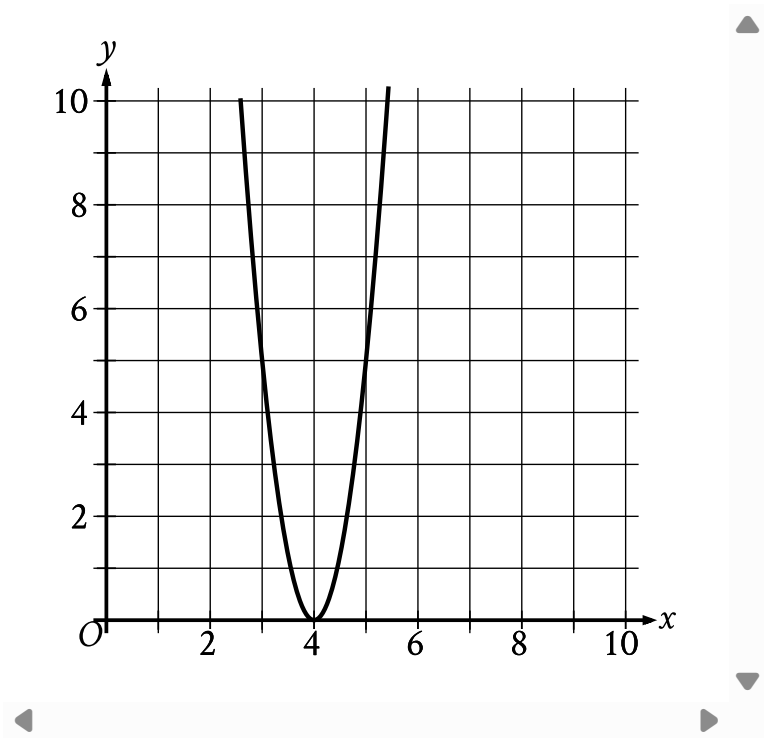
Choice D is incorrect. The graph shown doesn't pass through the point $0, 3$.

Question Difficulty: Easy

Question ID 3ee02cd5

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 3ee02cd5



What is the x -intercept of the graph shown?

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

ID: 3ee02cd5 Answer

Correct Answer: D

Rationale

Choice D is correct. The x -intercept of the graph shown is the point x, y on the graph where $y = 0$. At $y = 0$, the corresponding value of x is 4. Therefore, the x -intercept of the graph shown is 4, 0.

Choice A is incorrect. This is the x -intercept of a graph in the xy -plane that intersects the x -axis at $x = -5$, not $x = 4$.

Choice B is incorrect. This is the x -intercept of a graph in the xy -plane that intersects the x -axis at $x = 5$, not $x = 4$.

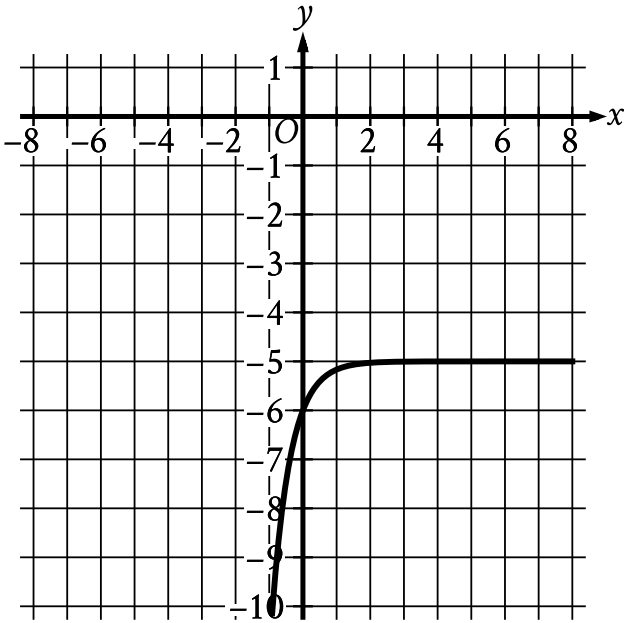
Choice C is incorrect. This is the x -intercept of a graph in the xy -plane that intersects the x -axis at $x = -4$, not $x = 4$.

Question Difficulty: Easy

Question ID 47d2bec6

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 47d2bec6



What is the y-intercept of the graph shown?

- A. $(0, -6)$
- B. $(-6, 0)$
- C. $(0, 0)$
- D. $(-5, -5)$

ID: 47d2bec6 Answer

Correct Answer: A

Rationale

Choice A is correct. The y-intercept of a graph in the xy -plane is the point x, y on the graph where $x = 0$. For the graph shown, at $x = 0$, the corresponding value of y is -6. Therefore, the y-intercept of the graph shown is 0, - 6.

Choice B is incorrect and may result from conceptual errors.

Choice C is incorrect and may result from conceptual errors.

Choice D is incorrect and may result from conceptual errors.

Question Difficulty: Easy

Question ID 23e6769f

Assessment	Test	Domain	Skill	Difficulty
PSAT 8/9	Math	Advanced Math	Nonlinear functions	<div><div></div><div></div><div></div></div>

ID: 23e6769f

The function f is defined by $f(x) = \frac{1}{6x}$. What is the value of $f(x)$ when $x = 3$?

- A. $\frac{1}{3}$
- B. $\frac{1}{6}$
- C. $\frac{1}{9}$
- D. $\frac{1}{18}$

ID: 23e6769f Answer

Correct Answer: D

Rationale

Choice D is correct. It's given that $fx = \frac{1}{6x}$. Substituting 3 for x in this equation yields $f3 = \frac{1}{63}$, or $f3 = \frac{1}{18}$. Therefore, when $x = 3$, the value of fx is $\frac{1}{18}$.

Choice A is incorrect. This is the value of fx when $x = 0.5$.

Choice B is incorrect. This is the value of fx when $x = 1$.

Choice C is incorrect. This is the value of fx when $x = 1.5$.

Question Difficulty: Easy