TEST NAME: **F-IF.4 NEW**
TEST ID: **971525**
GRADE: **09 - Ninth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student:

Class:

Date:

Read the passage - 'The Mathematics of Beanbag Toss' - and answer the question below:

The Mathematics of Beanbag Toss

The Mathematics of Beanbag Toss

What Is Beanbag Toss?

In the past few years, a lawn game commonly called beanbag toss has seen a growth in popularity and recognition across the United States. In beanbag toss, players throw beanbags at an inclined platform in an attempt to get the beanbags to land on the platform or go through a hole in the platform. The game is typically played by four players at a time, with two teams of two players each, and continues until one of the teams reaches a certain score.

The rules of the game are easy to learn, but tossing a beanbag so that it lands in the right spot can be challenging. The beanbag often slides off the slanted platform, so players practice tossing the beanbag into a high parabola. If the beanbag is thrown with too much velocity, it can land on the platform but then continue moving and slide off the top.

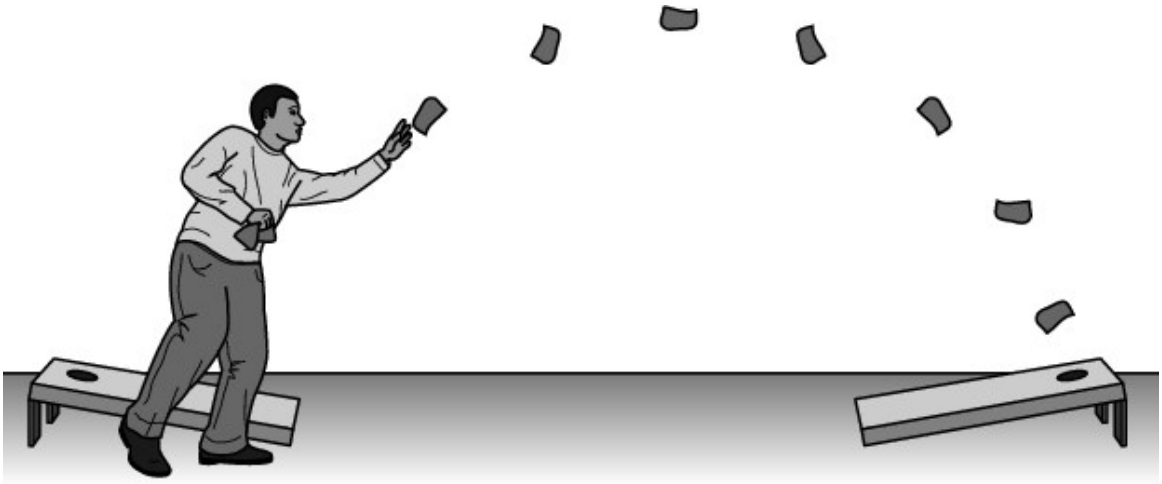

Figure 1

Beanbag Toss Setup

To play beanbag toss, two platforms and two different-colored sets of beanbags are needed. Many companies sell pre-made game sets that include all necessary materials. Instead of buying a set, a lot of people make their own platforms out of wood and paint them in their favorite colors or add logos representing their college or favorite sports team.

Beanbag toss platforms are 2 feet (ft) wide by 4 feet long and are angled so that the top is higher than the base. Each platform has a hole that is 6 inches (in.) in diameter. The center of the hole is 9 inches from the top of the platform and 12 inches from each edge. The platforms are typically 2 inches thick and have legs that fold out to make the top of the platform 12 inches tall.

There are four beanbags in each set, and two sets are needed for each game. The beanbags are filled with beans, corn kernels, or other similar materials. Each is a square that is 5 to 6 inches wide and weighs between 12 and 16 ounces.

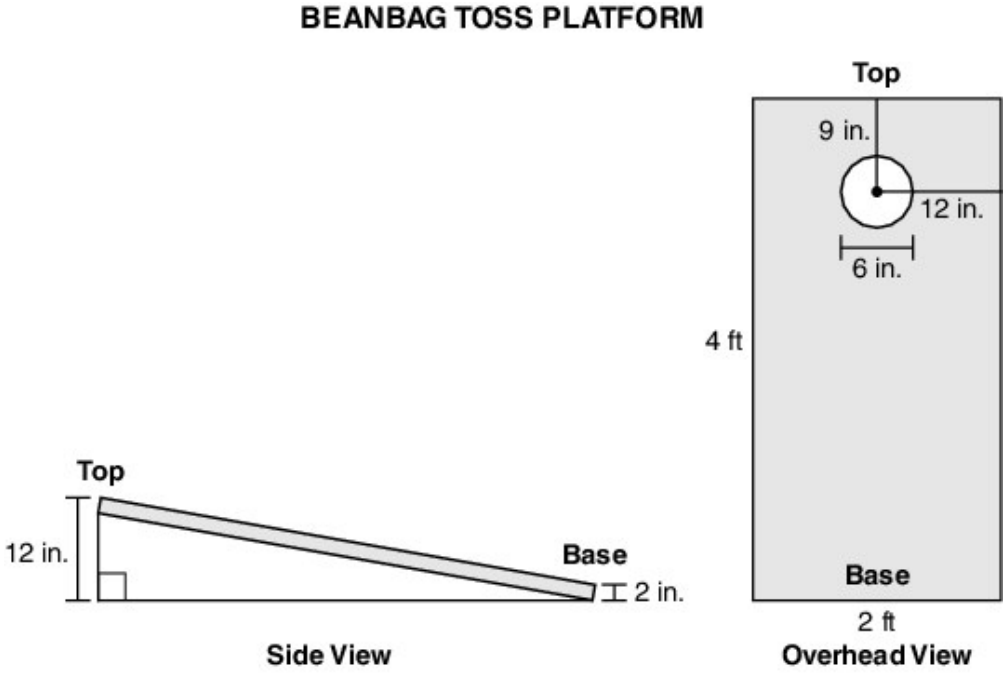

Figure 2

A typical beanbag toss court is set up so that the bases of the platforms are 27 feet apart and the holes are 33 feet apart at their closest point. The pitcher's boxes are the areas next to each platform; the players stand in their pitcher's box area when it is their turn to toss a beanbag, or pitch, onto the opposite platform. When pitching, players must stay behind the foul line formed by the base of the platform.

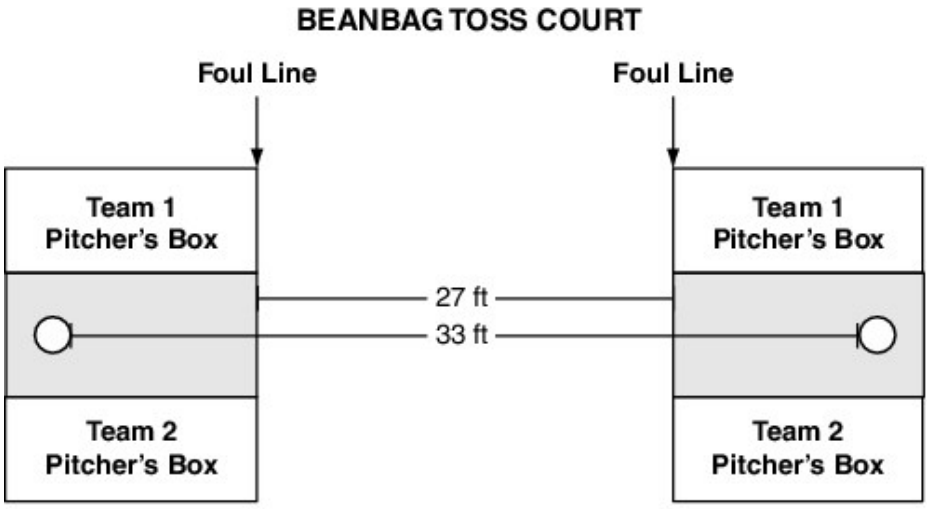

Figure 3

Rules and Scoring

Each team has two players who stand across from each other instead of next to each other. Members of opposing teams stand next to the same platform. In each round, the first player tosses a beanbag at the opposite platform; the opposing team's member then tosses a beanbag at that same platform. These two players alternate until they have each tossed all four of their beanbags. The score for the round is totaled; the next round begins when the other two players pick up the beanbags and toss them in the same alternating fashion.

Depending on where it lands, each beanbag can earn 3, 1, or 0 points. Every beanbag that goes through the hole by the end of the round is worth 3 points. These points are awarded no matter how the beanbag falls into the hole; it can be tossed directly into the hole, land on the platform and slide into the hole, or land on the platform and be pushed into the hole by another beanbag that lands on the platform. If a beanbag lands on the platform but does not fall through the hole or slide off the platform by the end of the round, it is worth 1 point. No points are awarded for any beanbag that touches the ground before reaching the platform, that never reaches the platform, or that is thrown from closer than the foul line.

To play a faster game, the point values can be added together until one team reaches 21 points. A longer and more common version of the game involves using cancellation scoring until one team reaches 21 points. In this version of the game, only one team can earn points in each round, and the team with the higher score is awarded the difference in the scores for that round. For example, if Team 1 had two beanbags on the platform and one in the hole and Team 2 had one beanbag on the platform and none in the hole, Team 1 would earn 4 points. In that same round in the faster version of the game, Team 1 would earn 5 points and Team 2 would earn 1 point.

There are many other scoring variations that can be used, such as playing to

25 points, requiring that a team wins by at least 2 points, or requiring a winning score of exactly 21 points and being penalized for going over 21 points.

Beanbag toss can be played anywhere and by people of all ages. The combination of outdoor fun, competition with friends, and versatility is what attracts people to the game. Start a game of beanbag toss with your friends or family this weekend and find out which variation of the game you prefer.

1. Read "The Mathematics of Beanbag Toss" and answer the question.

   Matt was playing a game of beanbag toss. With his arm over the center of the platform, Matt pitched a beanbag and let it go as his hand first crossed the foul line. His beanbag followed the path modeled by the function $M(x) = -0.11x^2 + 2.6x + 4$, where x represents the horizontal distance (in feet) from the foul line and $M(x)$ represents the beanbag's height (in feet) off the ground. What does the x-intercept of this function represent in the context of the problem?

   A. Matt let go of the beanbag when it was 4 feet off the ground.

   B. Matt let go of the beanbag when it was between 1 and 2 feet off the ground.

   C. The beanbag hit the ground 4 feet short of the platform for which Matt was aiming.

   D. The beanbag hit the ground between 1 and 2 feet short of the platform for which Matt was aiming.

Read the passage - 'Wendy's Novel' - and answer the question below:

Wendy's Novel

Wendy's Novel

Wendy wrote her first novel. Patrick, a publisher, helped her edit and publish the book through online retailers.

Patrick developed equations designed to model the revenue that he would receive from the sales of the novel and the costs that he would incur. The publisher's share of the revenue, R dollars, is modeled by the equation $R = 5.5n$, where n is the number of novels sold. The cost for Patrick to print the novel and release it to the market, C dollars, is modeled by the equation $C = 2n + 2600$.

Patrick gave Wendy two payment options for her novel. If she chose Option 1, she would receive a $1,000 payment immediately, and then she would earn $0.65 for each book sold. If she chose Option 2, she would receive no initial payment, but she would earn $1.05 for each book sold.

When Wendy's book was released, the sales of the novel started off moderate, increased at a steady rate for the first week, and then decreased at a steady rate. The daily sales of Wendy's novel, *s*, are modeled by the equation $s = -40|x-7|+1000$, where *x* is the number of days since the book was released. For the first 21 days after the novel was released, Patrick's model was accurate to within 3% of the book's actual sales.

2. Read "Wendy's Novel" and answer the question.

The table below shows the cost for Patrick to print the novel and release it to the market, based on different numbers of books printed at one time. Patrick's costs consist of one-time start-up expenses and materials expenses per copy.

Number of Books Printed	Patrick's Cost
100	$2800
200	$3000
500	$3600

Based on the table, what are Patrick's start-up expenses?

A. $2

B. $15

C. $2600

D. $2602

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3. **Look at the equation.**

$y = -Ax + 7$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{7}{6}$?

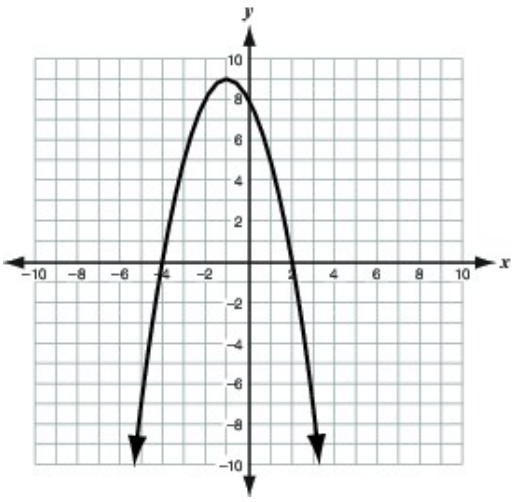
A. $\frac{7}{6}$

B. $\frac{35}{6}$

C. 6

D. 7

4. Use the function graphed on the coordinate plane below.



What are the intervals where the function is decreasing and increasing?

A. The function decreases from $(-\infty, 9)$ and increases from $(9, \infty)$.

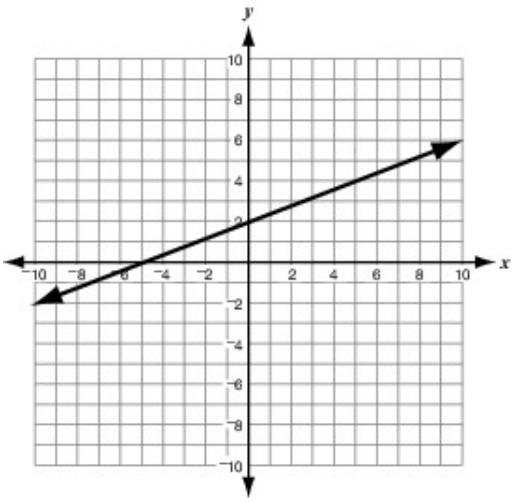
B. The function decreases from $(9, \infty)$ and increases from $(-\infty, 9)$.

C. The function decreases from $(-1, \infty)$ and increases from $(-\infty, 1)$.

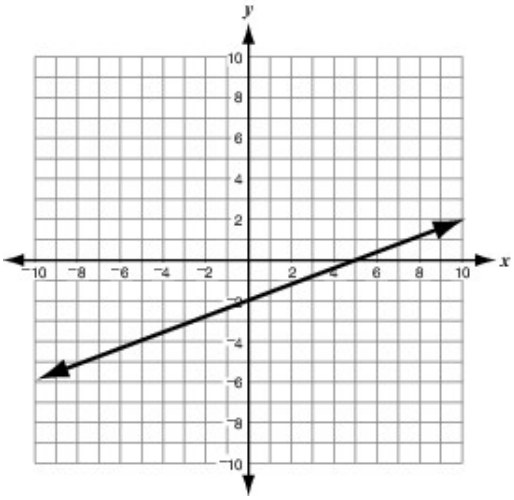
D. The function decreases from $(-\infty, -1)$ and increases from $(-1, \infty)$.

5. Which graph represents a function with an *x*-intercept at -2 and a *y*-intercept at 5?

A.



B.


y
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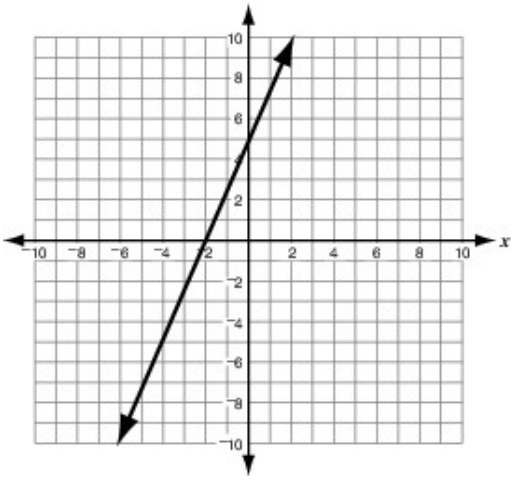
C.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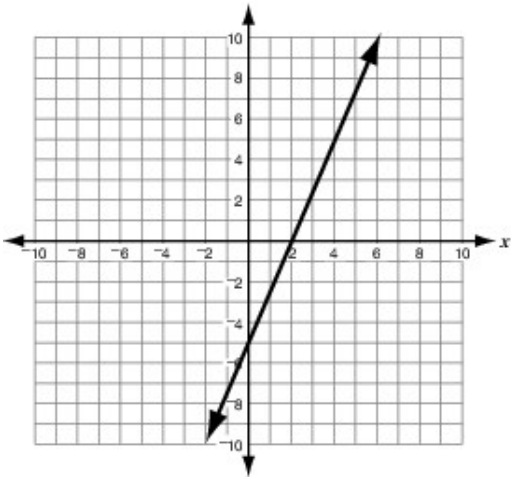
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6. **Look at the equation below.**

$y = Ax + 7$

For what value of *A* will the graph of the equation have an *x*–intercept of $\frac{7}{6}$?

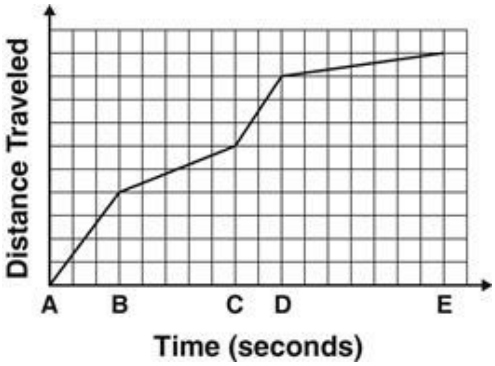
A. -6

B. $-\frac{1}{6}$

C. $\frac{7}{6}$

D. 7

7. **This graph displays the distance traveled by a cart as a function of time in seconds.**



At which time interval is the cart moving fastest?

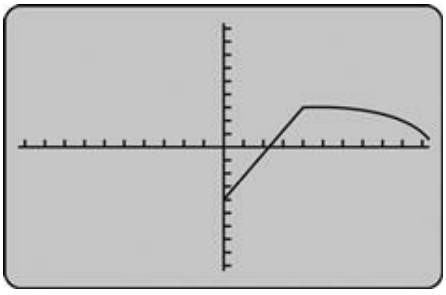
A. between A and B

B. between B and C

C. between C and D

D. between D and E

8. **The graphing calculator screen displays data on the outdoor temperature in degrees Fahrenheit over several hours on a winter day. The horizontal axis represents time.**



What does the graph indicate about the outdoor temperature over time?

A. It got warmer at a constant rate, and then colder at a decreasing rate.

B. It got warmer at a constant rate, and then colder at an increasing rate.

C. It got warmer at an increasing rate, and then colder at a decreasing rate.

D. It got warmer at an increasing rate, and then colder at an increasing rate.

9. A ball is thrown straight up with a speed of 32 feet per second, reaching a height of h feet after t seconds. The height of the ball is modeled by the function $h = 32t - 16t^2$. After how many seconds does the ball fall back to the same height it attained a half-second after it was thrown?

A. 1 second

B. 1.25 seconds

C. 1.5 seconds

D. 1.75 seconds

10. **What are the *x*- and *y*-intercepts of the graph of $-2x + y = 6$?**

A. *x*-intercept $= -6$ and *y*-intercept $= 3$

B. *x*-intercept $= -3$ and *y*-intercept $= 6$

C. *x*-intercept $= 3$ and *y*-intercept $= -6$

D. *x*-intercept $= 6$ and *y*-intercept $= -3$

11. The height of a ball, in feet, t seconds after it is thrown into the air is modeled by the function $h(t) = -16t^2 + 45t + 4$. ***Approximately*** what is the maximum height of the ball?

A. 4 feet

B. 33 feet

C. 36 feet

D. 45 feet

12. **What are the *x*- and *y*-intercepts of the graph of $x = 4 + \frac{1}{2}y$?**

A. *x*-intercept = –8, and *y*-intercept = –4

B. *x*-intercept = –4, and *y*-intercept = –8

C. *x*-intercept = 4, and *y*-intercept = –8

D. *x*-intercept = 8, and *y*-intercept = –4

13. **Line *l* is represented by the equation $\frac{1}{2}x + \frac{3}{2}y = \frac{1}{4}$. What are the *x*- and *y*-intercepts of line *l*?**

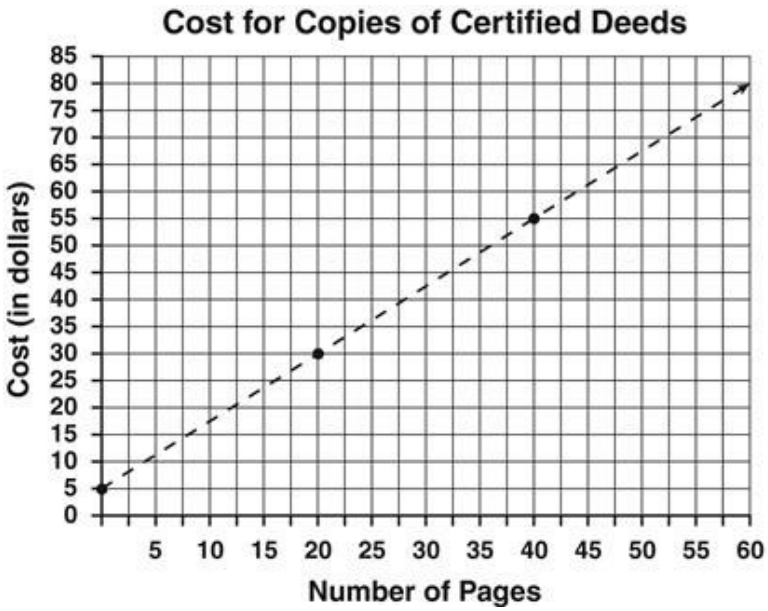
A. *x*-intercept of $\frac{1}{8}$ and *y*-intercept of $\frac{3}{8}$

B. *x*-intercept of $\frac{1}{2}$ and *y*-intercept of $\frac{1}{6}$

C. *x*-intercept of $\frac{1}{2}$ and *y*-intercept of $\frac{3}{2}$

D. *x*-intercept of 2 and *y*-intercept of $\frac{2}{3}$

14. **The county clerk's office provides copies of property deeds for $1.25 per page plus a one-time fee of $5.00 to certify the documents. The equation used to find *c*, the total cost for a certified deed, is $c = 1.25p + 5$, where *p* is number of pages in the deed. This equation is graphed below.**



If Mr. Martin paid $55.00 for a certified copy of his property deed, how many pages does his deed contain?

A. 74
B. 60
C. 55
D. 40

15. A rocket is launched with an initial upward velocity of 320 feet per second from an initial height of 15 feet. The function $h(t) = -16t^2 + 320t + 15$ models the height of the rocket, in feet, t seconds after it was launched. For how many seconds is the the height of the rocket greater than or equal to 1,039 feet?

A. 4 seconds

B. 12 seconds

C. 16 seconds

D. 20 seconds

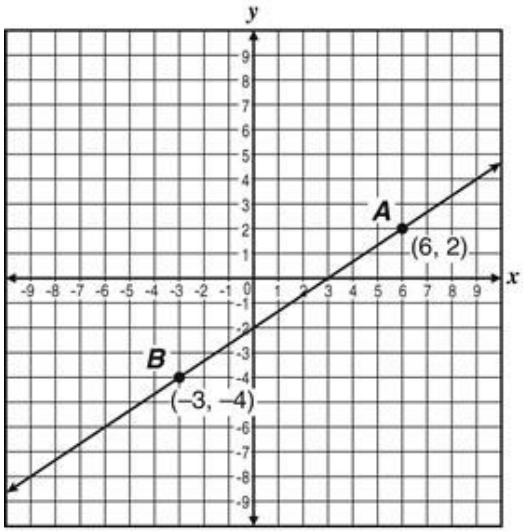
16. **Which point is the *x*-intercept of the line represented by the equation $8x + 3y = 24$?**

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

17. **Which ordered pair represents the *x*-intercept of the graph of** $y = \frac{3}{4}x + 6$?

A. $(-8, 0)$
B. $(0, -8)$
C. $(0, 6)$
D. $(6, 0)$

18. **A line is drawn through points *A* and *B* on the coordinate plane shown below.**



Which coordinates best represent the location of the *x*-intercept of the line?

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

19. Grover Elementary School is getting ready for the annual Penny Drive. The table below shows the target goals for the drive at the end of different weeks.

Time	Total money
Week 1	$ 3,000
Week 3	$ 3,400
Week 5	$ 3,800
Week 7	$ 4,200

If the students express the total as a function of the number of weeks that the Penny Drive has been open, what is the slope of that function?

A. 200

B. 400

C. 1,200

D. 2,800

20. **Look at the equation.**

$y = -Ax + 6$

For which value of *A* will the graph of the equation have an *x*-intercept of $\frac{3}{2}$?

A. 6

B. $\frac{9}{2}$

C. 4

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

21. Which statement **must** be true about polynomial functions?

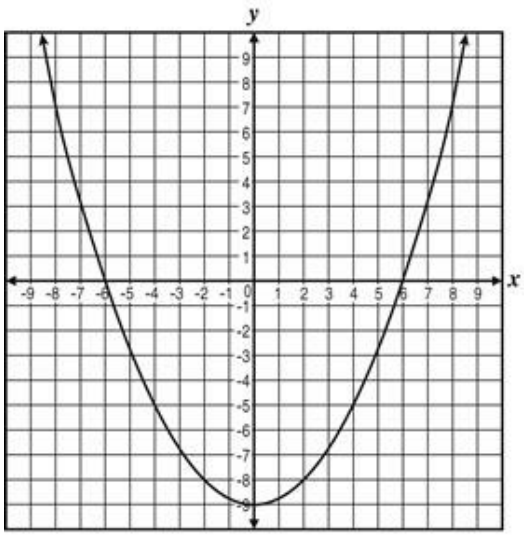
A. Functions that have different degrees have different end behavior as *x* approaches infinity.

B. Functions that have the same degree have the same end behavior as *x* approaches negative infinity.

C. Functions that have leading coefficients of different signs have different end behavior as *x* approaches infinity.

D. Functions that have leading coefficients with the same sign have the same end behavior as *x* approaches negative infinity.

22. **The graph of parabola $y = 0.25x^2 - 9$ is shown on the coordinate plane below.**



According to the graph, for which values of *x* is *y* always negative?

A. $x > 0$
B. $x < -9$
C. $x < -6$ and $x > 0$
D. $x > -6$ and $x < 6$

23. **What point is the *y*-intercept of the line represented by the equation $10x + 7y = 70$?**

A. $(10, 0)$
B. $(7, 0)$
C. $(0, 10)$
D. $(0, 7)$

24. For what values of x is the function $g(x) = -x^2 + 7x - 10$ negative?

A. $2 \leq x \leq 5$
B. $2 < x < 5$
C. $x < 2$ or $x > 5$
D. $x \leq 2$ or $x \geq 5$

25. **Which set of ordered pairs represents the *x*- and *y*-intercepts of the graph of $y = 4x + 12$?**

A. $(-3, 0)$ and $(0, -12)$
B. $(-3, 0)$ and $(0, 12)$
C. $(3, 0)$ and $(0, -12)$
D. $(3, 0)$ and $(0, 12)$

26. The height, in feet, of an arrow shot from a bow in an upwards direction, is modeled by the function $f(t) = -16t^2 + 96t + 5$, where t represents the time in minutes. During which interval is the arrow going up?

A. $0 < t < 3$

B. $3 < t < 6$

C. $5 \leq t \leq 149$

D. $16 < t < 96$

27. **Line *l* is represented by the equation $\frac{2}{5}x + \frac{5}{2}y = \frac{1}{10}$. What are the *x*- and *y*-intercepts of line *l*?**

A. *x*-intercept of $\frac{1}{25}$ and *y*-intercept of $\frac{1}{4}$

B. *x*-intercept of $\frac{1}{4}$ and *y*-intercept of $\frac{1}{25}$

C. *x*-intercept of $\frac{2}{5}$ and *y*-intercept of $\frac{5}{2}$

D. *x*-intercept of $\frac{5}{2}$ and *y*-intercept of $\frac{2}{5}$

28. **The graph of which equation below is symmetric with respect to the *y*-axis?**

A. $y = x^6 + x^2$

B. $4y = x^3$

C. $x = |y|$

D. $2x + y = 10$

29. **Line *l* is represented by the equation $\frac{1}{2}x + \frac{3}{4}y = \frac{1}{8}$. What are the *x*- and *y*-intercepts of Line *l*?**

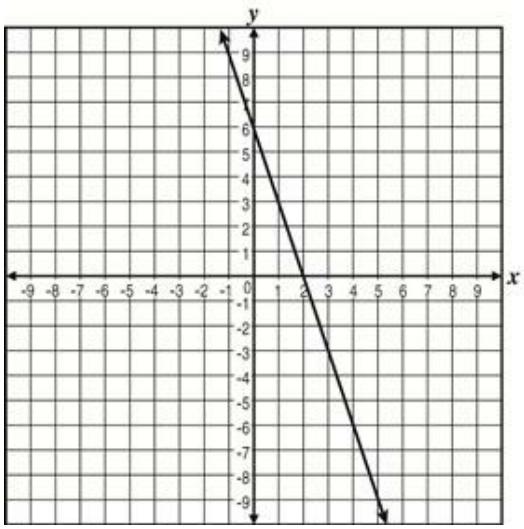
A. *x*-intercept of 2 and *y*-intercept of $\frac{4}{3}$

B. *x*-intercept of $\frac{1}{2}$ and *y*-intercept of $\frac{3}{4}$

C. *x*-intercept of $\frac{1}{4}$ and *y*-intercept of $\frac{1}{6}$

D. *x*-intercept of $\frac{1}{16}$ and *y*-intercept of $\frac{3}{32}$

30. **Which coordinates best represent the *y*-intercept of the line graphed below?**



A. $(0, 6)$

B. $(6, 0)$

C. $(0, 2)$

D. $(2, 0)$

31. **What are the *x*- and *y*-intercepts of the graph** of the equation $3x - 4y = -1$?

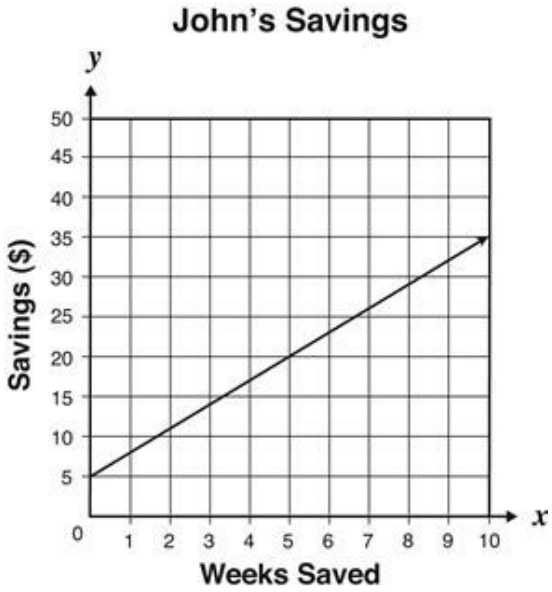
A. $x-\text{intercept: } -\frac{1}{3};\ y-\text{intercept: } -1$

B. $x-\text{intercept: } \frac{1}{4};\ y-\text{intercept: } -1$

C. $x-\text{intercept: } -\frac{1}{3};\ y-\text{intercept: } \frac{1}{4}$

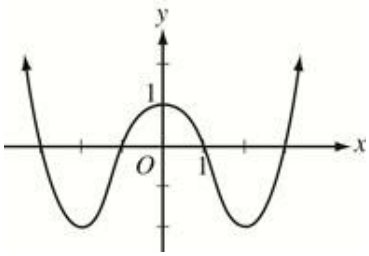
D. $x-\text{intercept: } \frac{1}{4};\ y-\text{intercept: } -\frac{1}{3}$

32. **Which problem could be modeled by the graph shown below?**



A. John has $3 saved and saves $5 more each week. How much money will he have saved after *x* weeks?
B. John has $5 saved and saves $3 more each week. How much money will he have saved after *x* weeks?
C. John has $5 saved and spends $3 each week. How much money will he have left after *x* weeks?
D. John has $3 saved and spends $5 a week. How much money will he have left after *x* weeks?

33. **In the graph below, what are all values of *x* for which *y* > 0?**

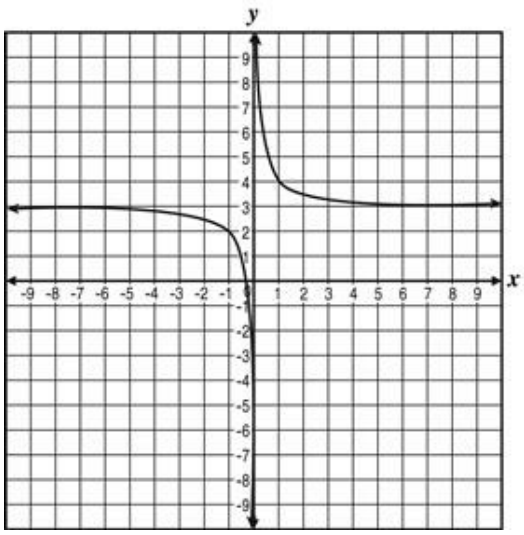


A. $x > 0$
B. $x > -2$
C. $-3 < x < -1$ or $1 < x < 3$
D. $x < -3$ or $-1 < x < 1$ or $x > 3$

34. **What is the *x*-intercept of the graph of** $2x - 4y = 7$?

A. -4
B. $-\frac{7}{4}$
C. $\frac{7}{2}$
D. 2

35. **Which function is represented by the graph?**



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

B. $f(x) = 3 + \frac{1}{x}$

C. $f(x) = \frac{1}{x}$

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

36. The amount of profit a company makes from selling video games for x dollars is modeled by the function $P(x) = -x^2 + 100x + 350{,}000$. To the nearest dollar, what price gives the maximum profit?

A. $40.00

B. $45.00

C. $50.00

D. $55.00

37. **Which point is the *x*-intercept of the line represented by the equation** $4x - y = -8$?

A. (−2, 0)

B. (−1, 0)

C. (4, 0)

D. (8, 0)

38. **Given the equation $-6x + 5y = 8$, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept = $-\frac{8}{5}$ and *y*-intercept = $\frac{4}{3}$

B. *x*-intercept = $-\frac{4}{3}$ and *y*-intercept = $\frac{8}{5}$

C. *x*-intercept = $\frac{4}{3}$ and *y*-intercept = $-\frac{8}{5}$

D. *x*-intercept = $\frac{8}{5}$ and *y*-intercept = $-\frac{4}{3}$

39. **Given the equation $-3x + 4y = 5$, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept = $-\frac{5}{3}$ and *y*-intercept = $\frac{5}{4}$

B. *x*-intercept = $-\frac{5}{4}$ and *y*-intercept = $\frac{5}{3}$

C. *x*-intercept = $\frac{5}{4}$ and *y*-intercept = $-\frac{5}{3}$

D. *x*-intercept = $\frac{5}{3}$ and *y*-intercept = $-\frac{5}{4}$

40. **What is the *x*-intercept of the line given by $2x + 3y = 6$?**

A. $(3, 0)$

B. $(2, 0)$

C. $(0, 3)$

D. $(0, 2)$

41. **Which point is the *x*-intercept of the line represented by the equation $4x - 2y = -16$?**

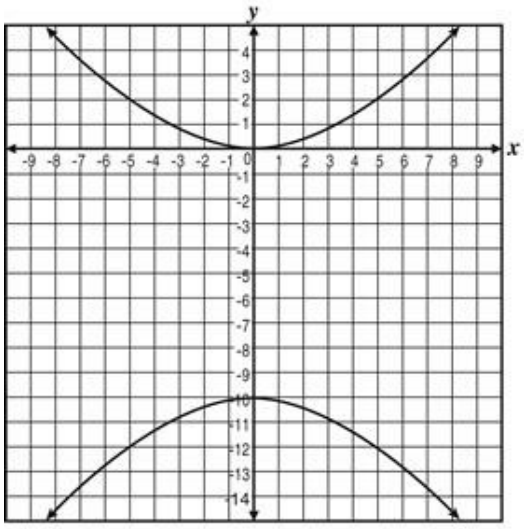
A. (8, 0)

B. (4, 0)

C. (−2, 0)

D. (−4, 0)

42. **The graph of the hyperbola $x^2 - y^2 = 10y$ is shown below.**



About which line is this graph symmetric?

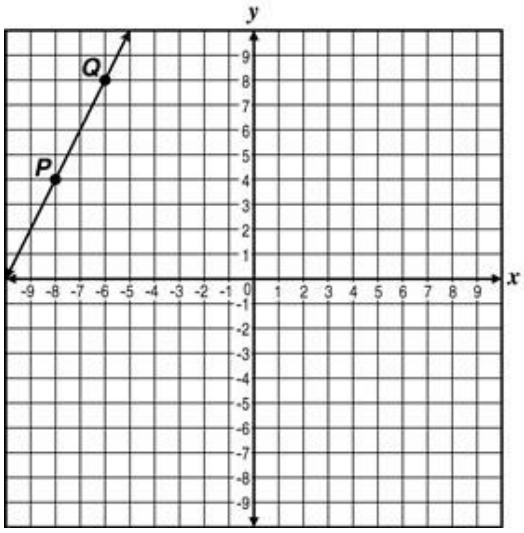
A. $y = 0$

B. $y = -5$

C. $y = x - 5$

D. $y = -x - 5$

43. **Points $P(-8, 4)$ and $Q(-6, 8)$ are on the line shown in the coordinate plane below.**



What is the *y*-intercept of the line containing Points *P* and *Q*?

A. $(0, 16)$

B. $(0, 20)$

C. $(0, 22)$

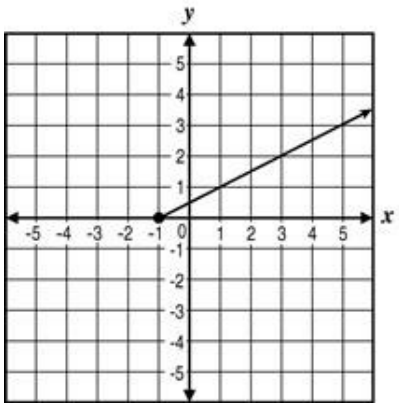
D. $(0, 24)$

44. **Which point is the *y*-intercept of the graph of $5x - 3y = 15$?**

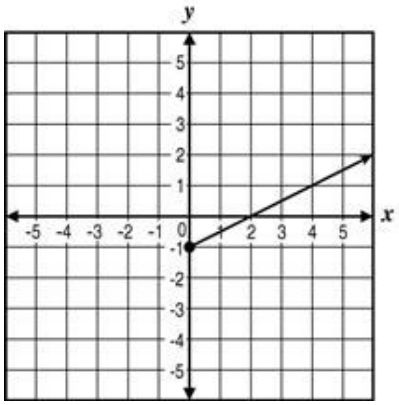
A. $(-5,\ 0)$
B. $(3,\ 0)$
C. $(0, -5)$
D. $(0,\ 3)$

45. **Before building a ramp with a slope of $\frac{1}{2}$, a student makes a sketch of the ramp using $(-1, 0)$ as the starting point for the ramp. Which graph represents a portion of the ramp?**

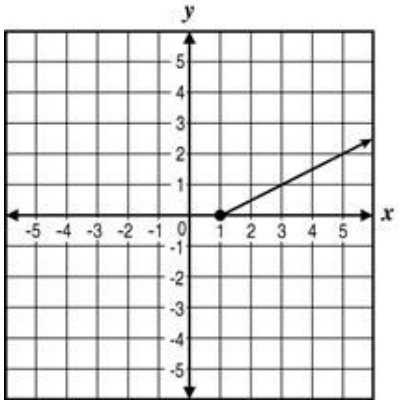
A.



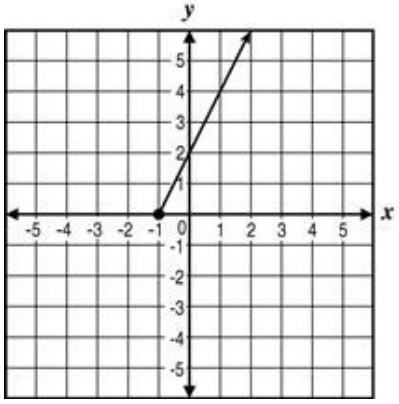
B.



C.



D.



46. What is the axis of symmetry for the function $y = 2x^2 + 4x - 1$?

A. $x = -4$

B. $x = -1$

C. $x = 1$

D. $x = 4$

47. **What is the *x*-intercept of the line given by** $3x + 2y = 12$?

A. $(0, 6)$

B. $(0, 4)$

C. $(4, 0)$

D. $(6, 0)$

48. What is the maximum value of the function that fits the values shown in the table below?

x	*y*
-2	-13
0	3
2	11
4	11
6	3
8	-13

A. 11

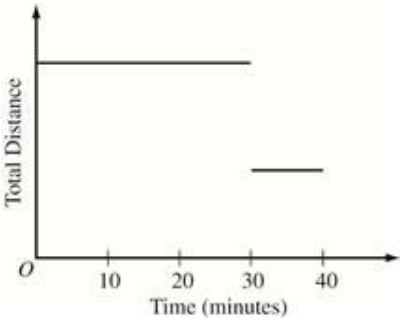
B. 12

C. 13

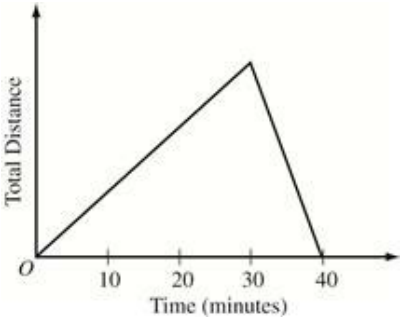
D. 19

49. **On a hike, Maria walked up a hill in 30 minutes and then she ran back down the hill in 10 minutes. Which of the following graphs could model the total distance Maria hiked?**

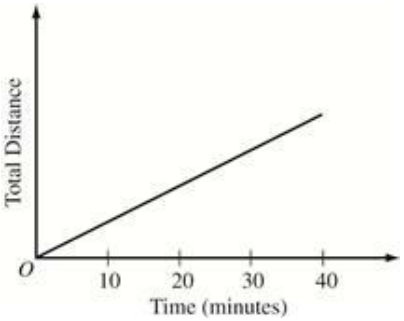
A.



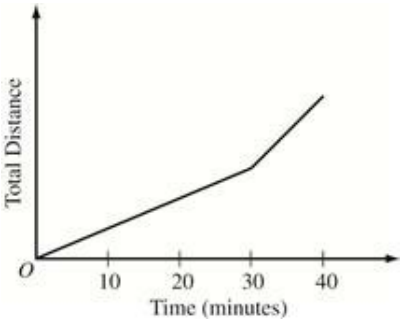
B.



C.



D.



50. A scientist conducts an experiment to observe the half-life period of the radioactive element barium. He starts the experiment with 200 grams of barium and records the mass at the end of every thirteenth day.

DECREASE IN BARIUM'S MASS OVER TIME

Number of Days	Mass (in grams)
0	200
13	100
26	50
39	25

After how many days is the mass of barium closest to 1.5 grams?

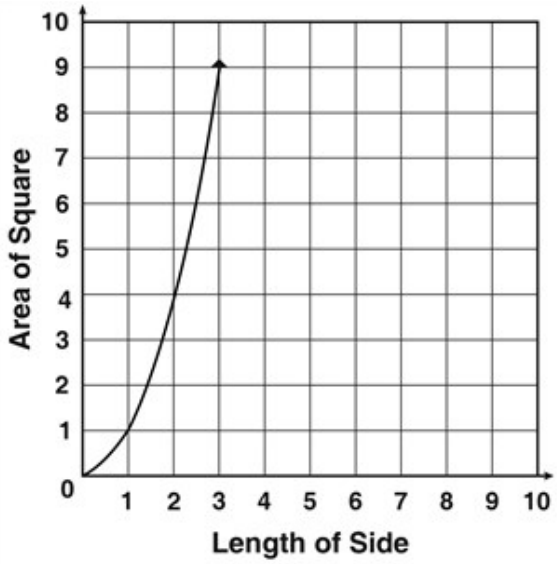
A. 13 days

B. 65 days

C. 91 days

D. 104 days

51. **The function depicted in the graph models the area of a square.**



Based on the graph, which of the following would be the independent quantity in this relationship?

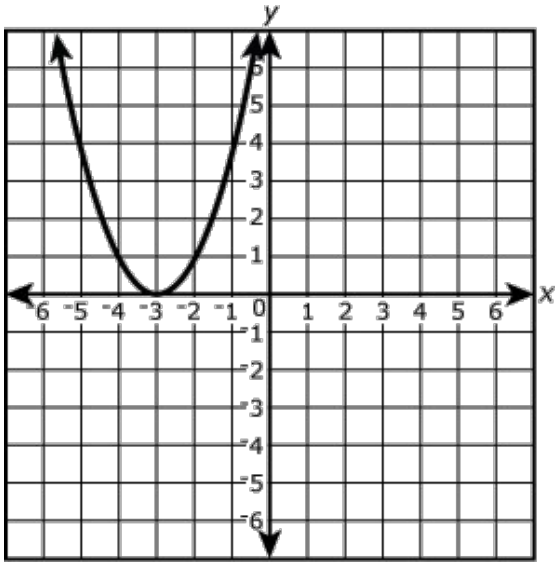
A. the length of the square's side

B. the area of the square

C. the *x*-axis

D. the curve

52. The graph of a function is shown.



What is the *x*-intercept?

A. -6

B. -3

C. 3

D. 9

53. **Which point is the *y*-intercept of the line represented by the equation** $x + 7y = 7$?

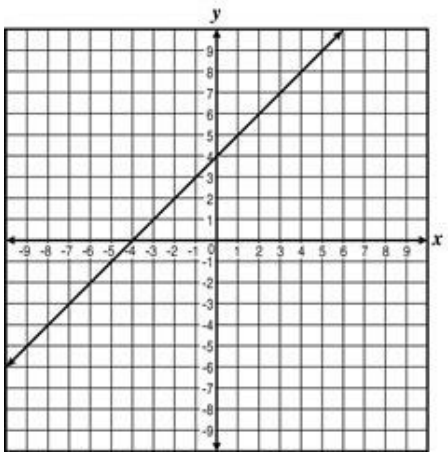
A. $(0, 1)$

B. $(0, 7)$

C. $(1, 0)$

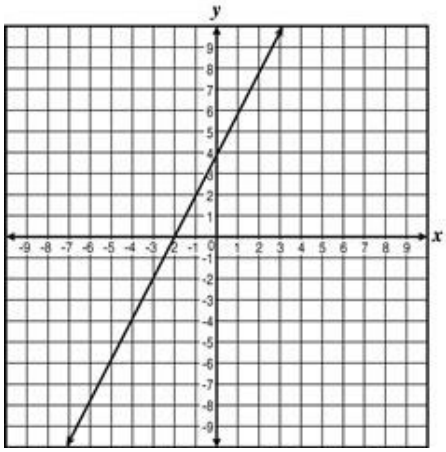
D. $(7, 0)$

54. **The graph of a linear function is shown below.**

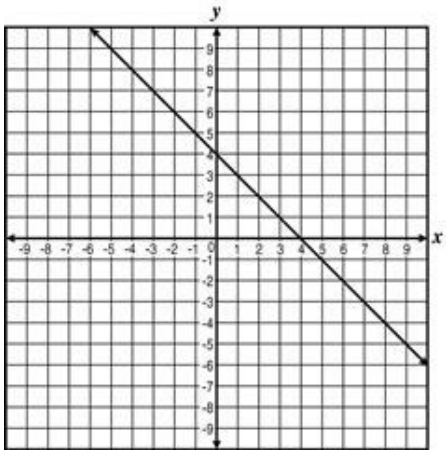


Which graph shows the same function with its slope changed to $\frac{1}{2}$?

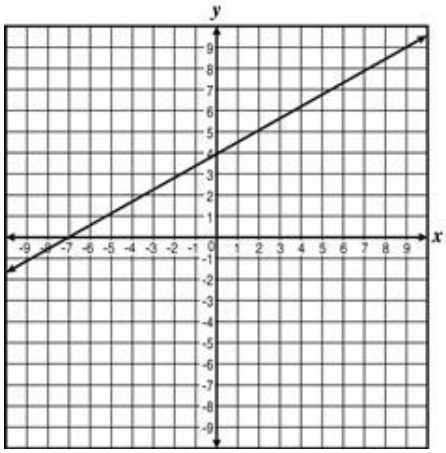
A.



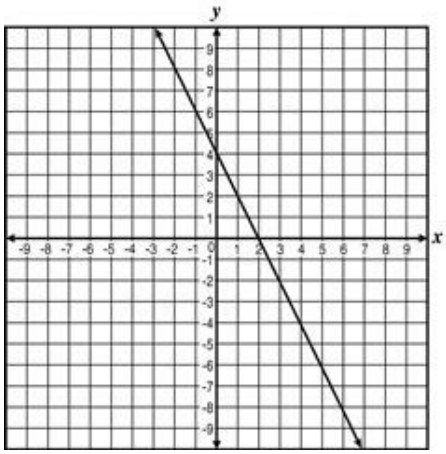
B.



C.



D.



55. **Given the equation −2*x* + 6*y* = 9, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept = $\frac{9}{2}$ and *y*-intercept = $-\frac{3}{2}$

B. *x*-intercept = $\frac{3}{2}$ and *y*-intercept = $-\frac{9}{2}$

C. *x*-intercept = $-\frac{3}{2}$ and *y*-intercept = $\frac{9}{2}$

D. *x*-intercept = $-\frac{9}{2}$ and *y*-intercept = $\frac{3}{2}$

56. **Given the equation $-x + 3y = 9$, what are the *x*- and *y*-intercepts of the graph?**

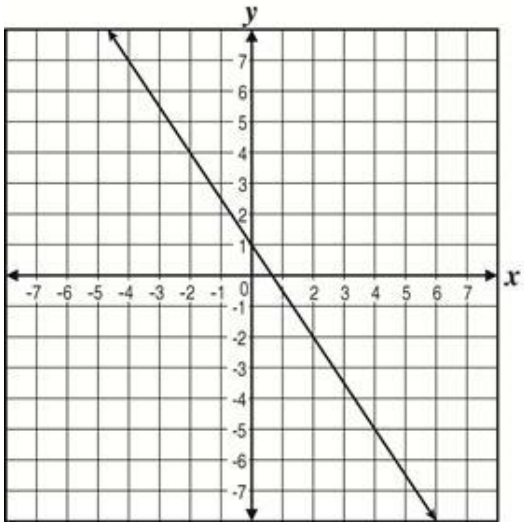
A. *x*-intercept = 9 and *y*-intercept = -3

B. *x*-intercept = 3 and *y*-intercept = -9

C. *x*-intercept = -3 and *y*-intercept = 9

D. *x*-intercept = -9 and *y*-intercept = 3

57. **The equation $y = 1 - \frac{3}{2}x$ is graphed below.**



What is the *x*-intercept of the graph of the equation?

A. $\left(-\frac{3}{2}, 0\right)$

B. $(-1, 0)$

C. $\left(\frac{2}{3}, 0\right)$

D. $(1, 0)$

58. **What is the *x*-intercept of the graph of $3x - y + 6 = 0$?**

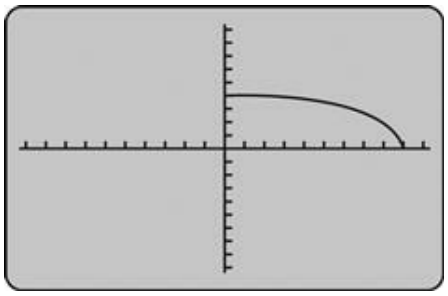
A. $(-2, 0)$

B. $(0, -6)$

C. $(0, 6)$

D. $(2, 0)$

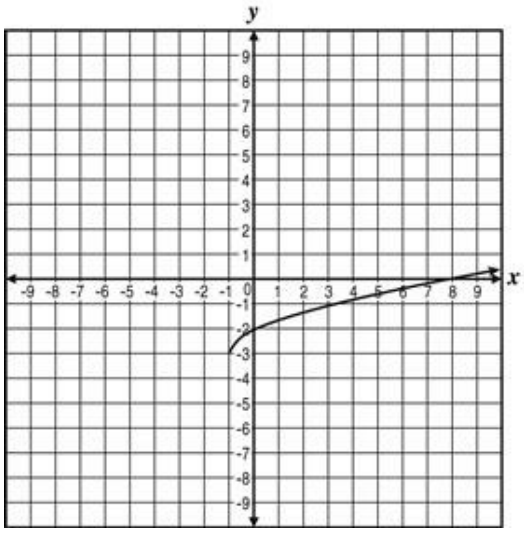
59. **The graphing calculator screen below represents time on the horizontal axis and the speed of a car on the vertical axis.**



What does the graph indicate about the motion of the car?

A. The car sped up at a constant rate.
B. The car sped up at a decreasing rate.
C. The car slowed down at a decreasing rate.
D. The car slowed down at an increasing rate.

60. **Which function is represented by this graph?**



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

61. Last year, a computer store sold 200 laptops at the price of $1,000 per laptop. The store manager is planning for the upcoming year. She creates the graph shown below of the projected revenue from the sales of laptop computers for next year depending on the price increase per laptop.

What does the vertex of the parabola represent in terms of the context?

A. The minimum revenue from laptops will be $1,000 when the price per laptop is not increased.

B. The minimum revenue from laptops will be $200,000 when the price per laptop is not increased.

C. The maximum revenue of $225,000 occurs when the laptops are priced at $250.

D. The maximum revenue of $225,000 occurs when the laptops are priced at $1,250.

62. **Which of the following functions is symmetric with respect to the *y*-axis?**

A. $y = 4 - x^2$

B. $y = x^3 + 5x$

C. $y = 3x - 5$

D. $y = x^2 + 3x - 4$

63. **What are the *x*- and *y*-intercepts of the graph of the equation $2x - 3y = -4$?**

A. *x*-intercept: -2; *y*-intercept: $-\frac{4}{3}$

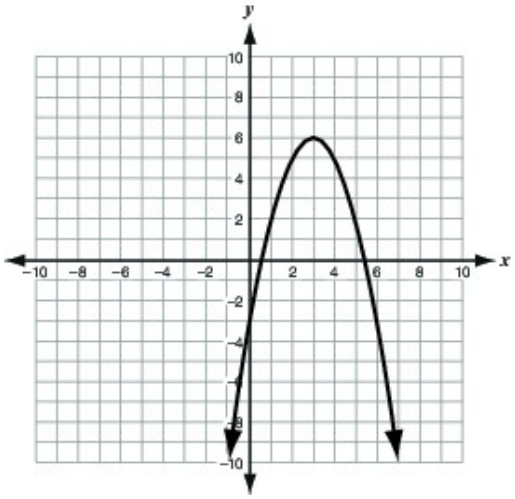
B. *x*-intercept: -2; *y*-intercept: $\frac{4}{3}$

C. *x*-intercept: $\frac{4}{3}$; *y*-intercept: 2

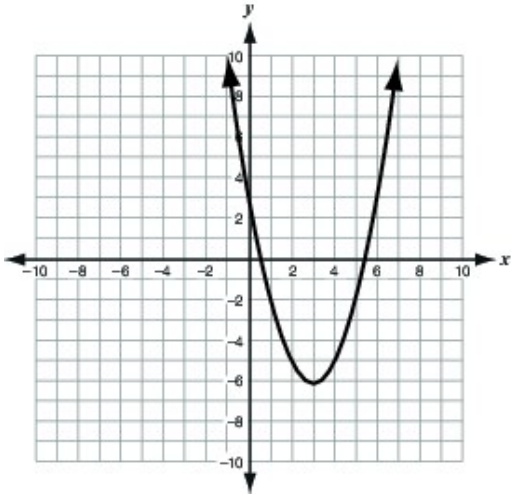
D. *x*-intercept: $\frac{4}{3}$; *y*-intercept: -2

64. The graph of a function $f(x)$ has its maximum point on the line $x = 3$. Which of these is the possible graph of $f(x)$?

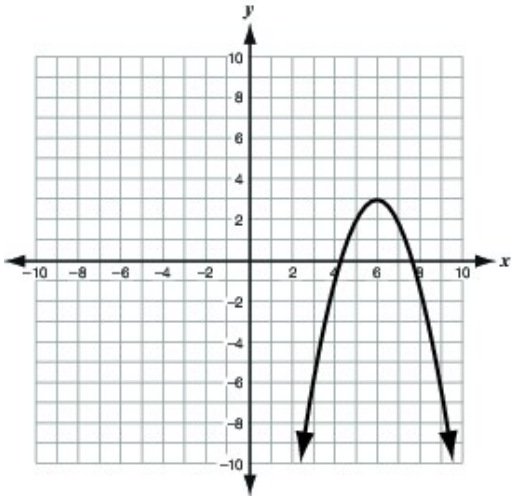
A.



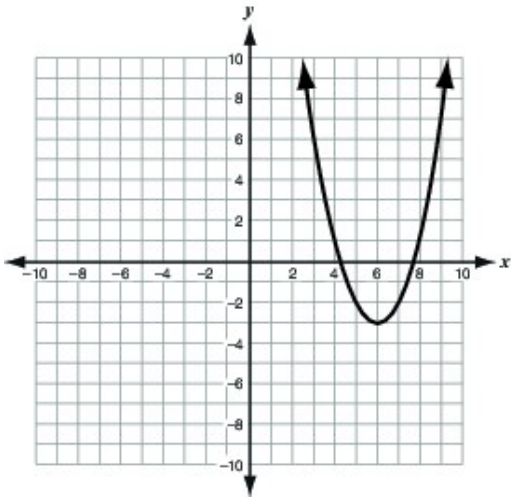
B.



C.

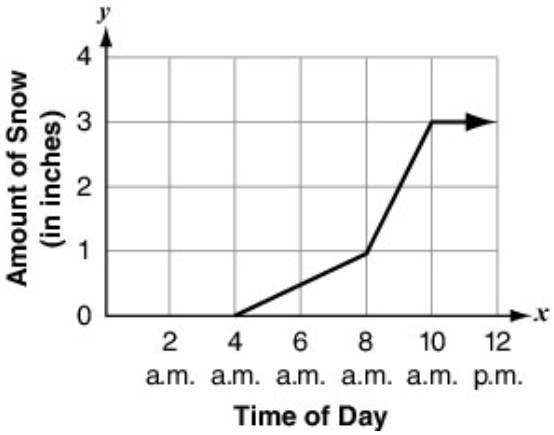


D.

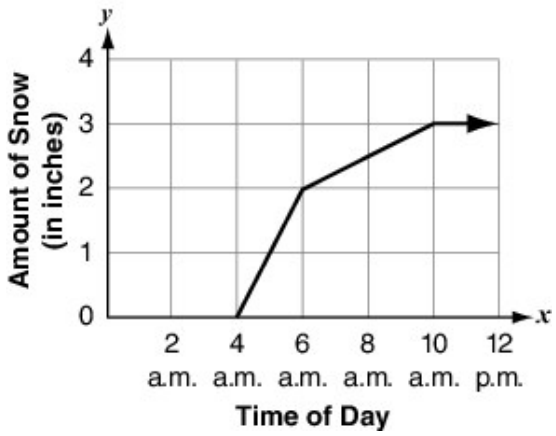


65. On a winter day, it started snowing lightly at 4 a.m. and then heavier at 8 a.m. By 10 a.m. it stopped, and the total snowfall recorded was 3 inches. It didn't snow for the rest of the day. Which of these is a possible graph for the number of inches of snow as a function of time, from midnight to midday?

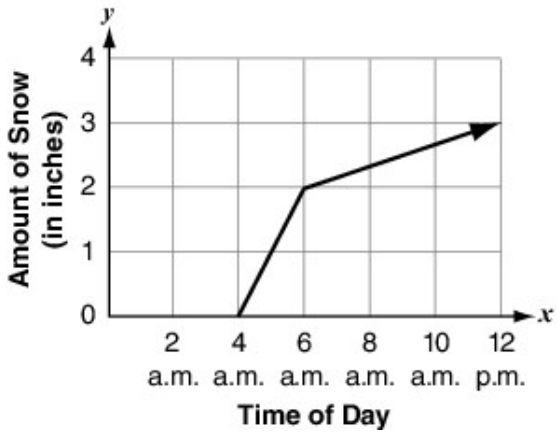
A.



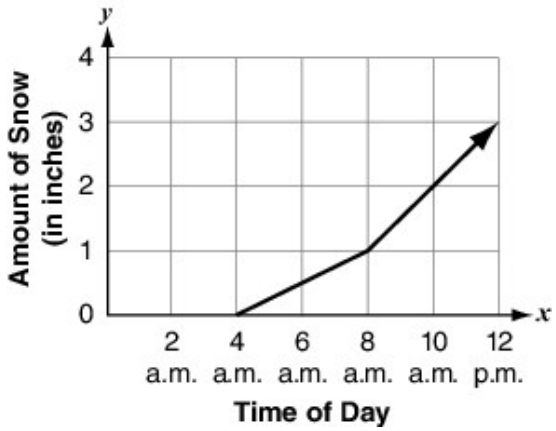
B.



C.



D.



66. Which function has a graph that has an *x*-intercept at (¯1, 0) and a *y*-intercept at (0, 3)?

A. $y = \frac{1}{3}x + 1$

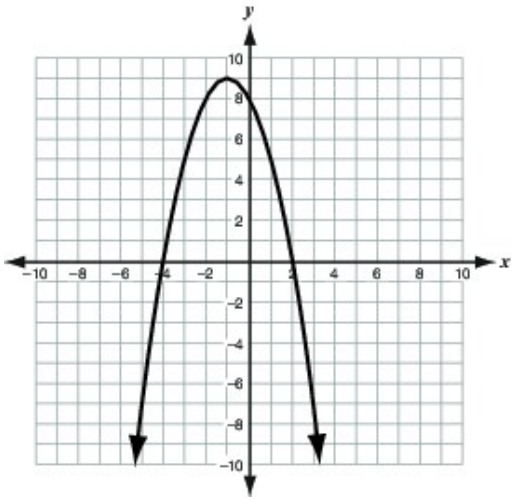
B. $y = 2x + 3$

C. $y = \frac{1}{2}x^2 - 2x + 3$

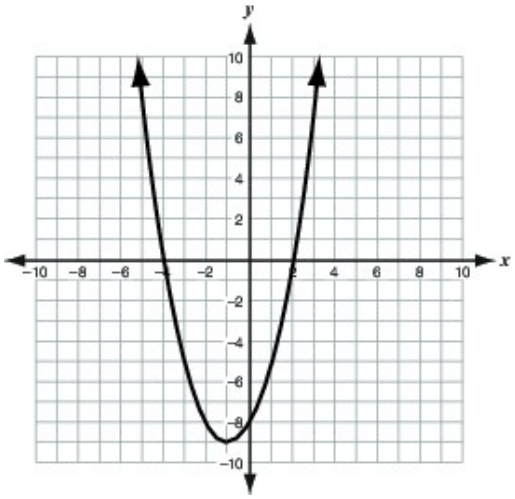
D. $y = x^2 + 4x + 3$

67. Which graph represents a function that has x-intercepts at -2^{-2} and 4 along with a maximum point on the axis of symmetry $x = 1$?

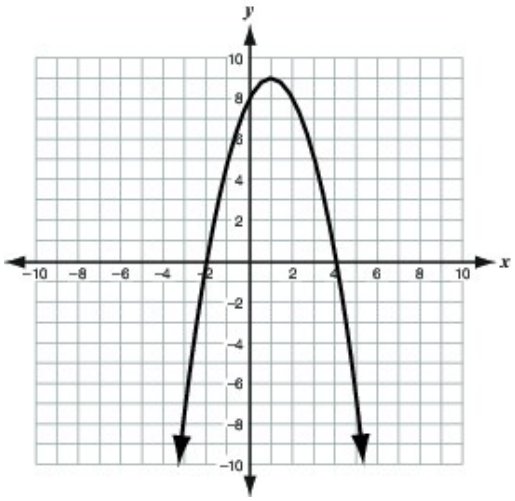
A.



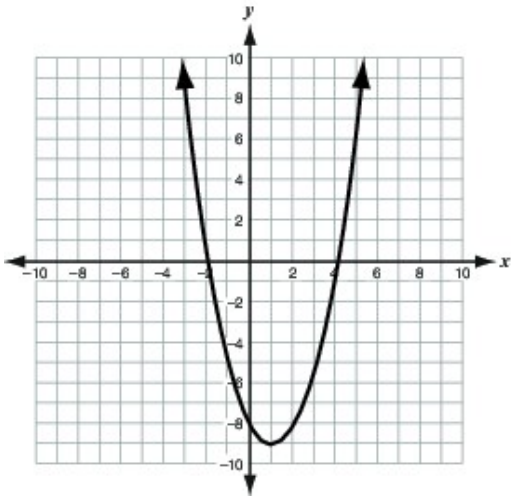
B.



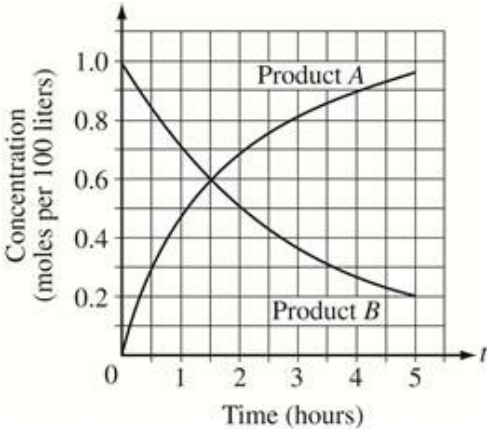
C.



D.



68. **The concentrations of Product *A* and Product *B* at time *t* hours after a chemical reaction starts are shown in the graph below.**



How many hours after the chemical reaction starts are the concentrations of the two products equal?

A. 0.6
B. 1.0
C. 1.5
D. 2.0

69. Amil and Colton had two toy rockets they planned to launch from different buildings at different times. The height, h, of Amil's rocket launched from the top of a building after t seconds is modeled by the equation $h = -16t^2 + 100t + 40$, where 100 represents the initial velocity in feet per second. Colton launched his rocket from a building with a height that was double the height from where Amil's rocket was launched. The initial velocity of Colton's rocket was half the initial velocity of Amil's rocket. What is the approximate difference in the maximum heights of the two rockets after they were launched?

A. 1.6 feet

B. 40.0 feet

C. 50.0 feet

D. 77.2 feet

70. What is the minimum value of the function $f(x) = (2x + 6)(x - 7)$?

A. ⁻120

B. ⁻50

C. ⁻25.5

D. ⁻1.5

71. **Look at the equation below.**

$y = Ax + 6$

For which value of *A* will the graph of the equation have an *x*-intercept of 4?

A. $-\frac{3}{2}$

B. $-\frac{2}{3}$

C. 4

D. 6

72. **The graph of which of the following equations has *x*-intercepts of 4 and -4?**

A. $y + 4 = x$

B. $y - 4 = x$

C. $y + 16 = x^2$

D. $x + 16 = y^2$

73. **What is the *y*-intercept of the line whose equation is $2x + 5y = 10$?**

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

74. **What point is the *x*-intercept of the line represented by the equation $5x + 3y = 15$?**

A. (5, 0)
B. (3, 0)
C. (0, 5)
D. (0, 3)

75. **What point is the *x*-intercept of the line represented by the equation $2x - 2y = -8$?**

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

76. **The equation is linear.**

$y = -Ax + 8$

For which value of *A* will the graph of the equation have an *x*-intercept of $\frac{4}{3}$?

A. $\frac{4}{3}$
B. 6
C. $\frac{20}{3}$
D. 8

77. **Line *l* is represented by the equation $\frac{3}{5}x + \frac{5}{3}y = \frac{1}{15}$. What are the *x*- and *y*-intercepts of line *l* ?**

A. *x*-intercept of $\frac{1}{25}$ and *y*-intercept of $\frac{1}{9}$
B. *x*-intercept of $\frac{1}{9}$ and *y*-intercept of $\frac{1}{25}$
C. *x*-intercept of $\frac{3}{5}$ and *y*-intercept of $\frac{5}{3}$
D. *x*-intercept of $\frac{5}{3}$ and *y*-intercept of $\frac{3}{5}$

78. **If $y = -3(x+2)^2 + 1$, where *x* is an integer, what is the greatest possible value of *y*?**

A. –2
B. –1
C. 1
D. 2

79. **What is the *x*-intercept of the line that represents $y = -4x + 12$?**

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

80. Henry examined the table that represents values satisfying the function $f(x)$ shown below.

x	$f(x)$
0	−18
1	0
2	4
3	0
4	−6
5	−8
6	0
7	24
8	70

Based on the information in the table, which one of these key features is **incorrect**?

A. The *y*-intercept of the graph of the function is at $(0, -18)$.

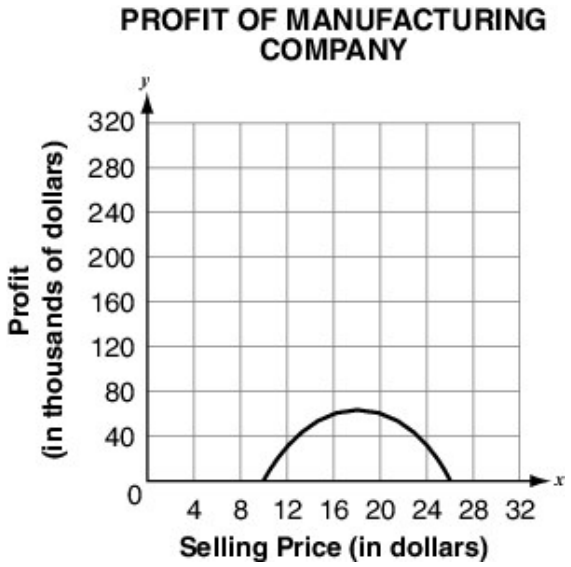
B. The maximum value of the function is 4.

C. A local minimum is located within the interval $[3, 6]$.

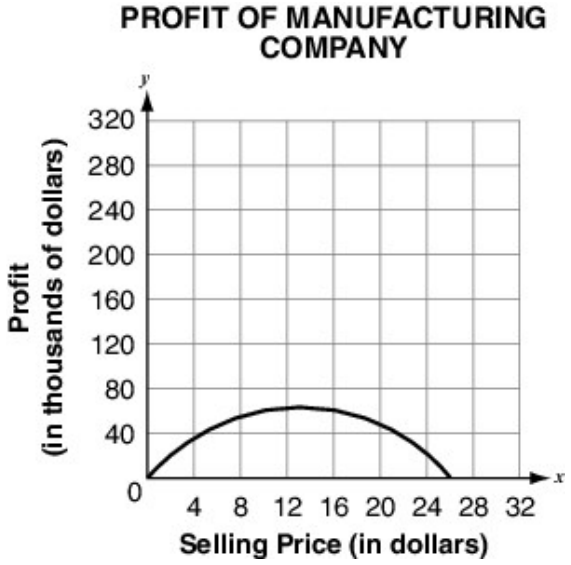
D. A local maximum is located within the interval $[1, 3]$.

81. The total profit of a manufacturing company in thousands of dollars is modeled by the function $f(x) = -4x^2 + 144x - 1040$, where *x* represents the selling price of each product in dollars. Which graph best represents the total profit the company earns on different selling prices of its product?

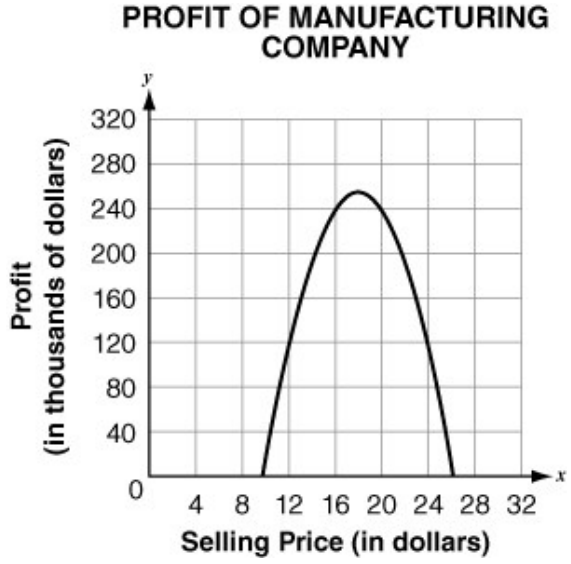
A.



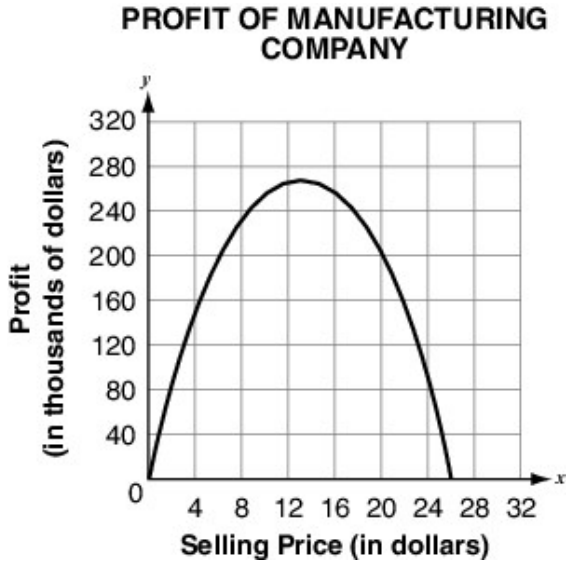
B.



C.



D.



82. **Look at the equation below.**

$y = -Ax + 8$

For what value of *A* will the graph of the equation have an *x*-intercept of 2?

A. 2
B. 4
C. 6
D. 8

83. **What are the *x*- and *y*-intercepts of the graph of the equation** $4x - 3y = -5$?

A. *x*-intercept: $-\frac{5}{4}$; *y*-intercept: $-\frac{5}{3}$
B. *x*-intercept: $\frac{5}{3}$; *y*-intercept: $\frac{5}{4}$
C. *x*-intercept: $-\frac{5}{4}$; *y*-interecept: $\frac{5}{3}$
D. *x*-intercept: $\frac{5}{3}$; *y*-intercept: $-\frac{5}{4}$

84. **Given the equation** $-4x + 2y = 32$, **what are the *x*-intercept and *y*-intercept of the graph?**

A. $x\text{-intercept} = -16 \text{ and } y\text{-intercept} = 8$
B. $x\text{-intercept} = -8 \text{ and } y\text{-intercept} = 16$
C. $x\text{-intercept} = 8 \text{ and } y\text{-intercept} = -16$
D. $x\text{-intercept} = 16 \text{ and } y\text{-intercept} = -8$

85. **Look at the equation below.**

$y = -Ax + 6$

For what value of *A* will the graph of the equation have an *x*-intercept at (2, 0)?

A. 6
B. 4
C. 3
D. 2

86. **Which of the following functions has rotational symmetry with respect to the origin?**

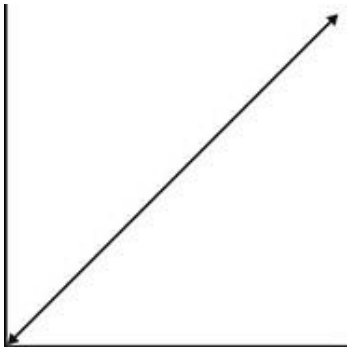
A. $y = x$
B. $y = |x|$
C. $y = x^2$
D. $y = \frac{1}{x^2}$

87. A baseball is thrown upward from the top of a building. The height of the ball t seconds after it was thrown into the air is modeled by the function $h(t) = -16t^2 + 50t + 75$. During which ***approximate*** interval is the ball falling towards the ground?

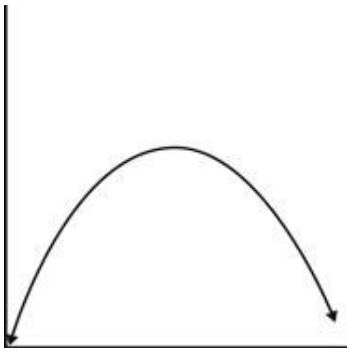
A. 0 to 1.6 seconds
B. 0.9 to 2.6 seconds
C. 1.6 to 4.2 seconds
D. 4.2 to 6.0 seconds

88. **When a football is punted, it goes up and then comes down. Which graph best represents the distance between the football and the ground over time?**

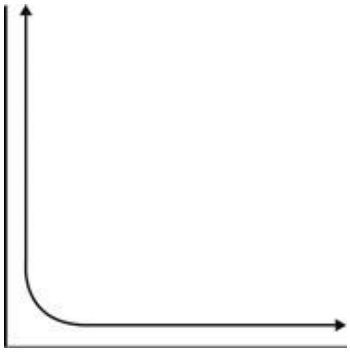
A.



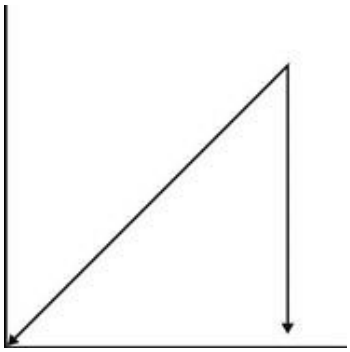
B.



C.



D.



89. **The graph of which function has neither origin nor *y*-axis symmetry?**

A. $f(x) = |x|$

B. $f\left(x\right) = \frac{9}{x}$

C. $f(x) = 10^x$

D. $f(x) = \cos(x)$

90. **Which function *f*(*x*) increases on the interval $(-\infty, 0)$ but decreases on the interval $(0, \infty)$?**

A. $f(x) = x^3$

B. $f(x) = -x^3$

C. $f(x) = x^4$

D. $f(x) = -x^4$

91. **The graph of $y = (x - 1)^6$ is symmetric about which geometric object?**

A. origin

B. *y*-axis

C. point (1, 0)

D. graph of $x = 1$

92. **Line *l* is represented by the equation $\frac{1}{3}x + \frac{5}{2}y = \frac{1}{6}$ What are the *x*- and *y*-intercepts of Line *l*?**

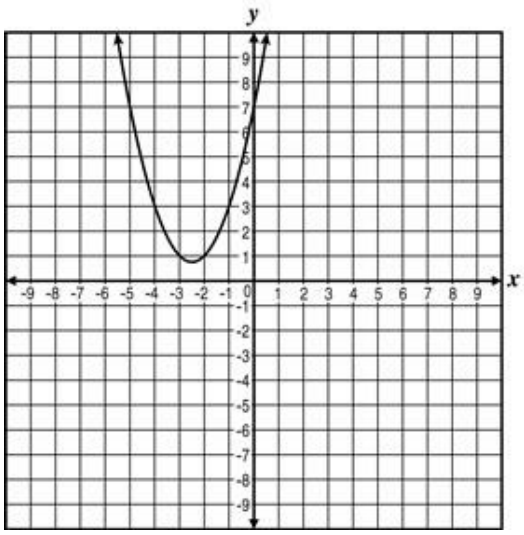
A. *x*-intercept of $\frac{1}{18}$ and *y*-intercept $\frac{5}{12}$

B. *x*-intercept of $\frac{1}{3}$ and *y*-intercept $\frac{5}{2}$

C. *x*-intercept of $\frac{1}{2}$ and *y*-intercept $\frac{1}{15}$

D. *x*-intercept of 3 and *y*-intercept $\frac{2}{5}$

93. **Which table of *x*-values and *y*-values is best represented by the graph below?**



A.

x	*y*
1	–2
3	–1
7	0
–4	3

B.

x	*y*
0	7
1	3
2	1
4	3

C.

x	*y*
–2	1
0	7
–4	3
–3	1

D.

x	*y*
–3	4
–2	1
0	7
4	–3

94. A ball is thrown in the air from a platform at time $t = 0$ seconds. The height, $h(t)$, of the ball can be modeled as a function of time, t, by the equation $h(t) = -16t^2 + 40t + 20$. Approximately how many seconds after being thrown will the ball hit the ground?

A. 0.13 second

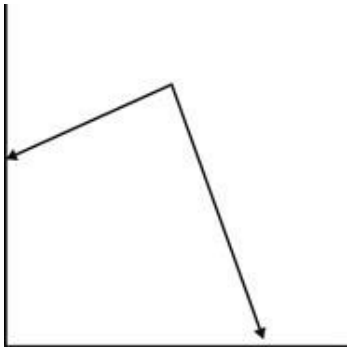
B. 1.25 seconds

C. 2.37 seconds

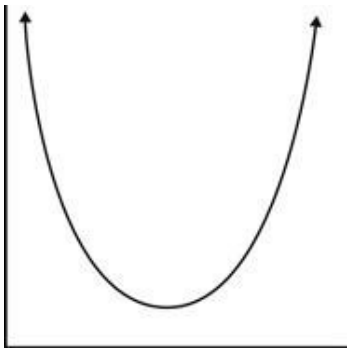
D. 2.93 seconds

95. **As a cup of coffee sits on the counter, the temperature of the coffee cools to room temperature. Which of the following graphs best represents the relationship between how long the coffee has been sitting and the temperature of the coffee?**

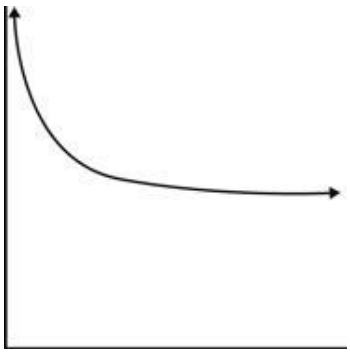
A.



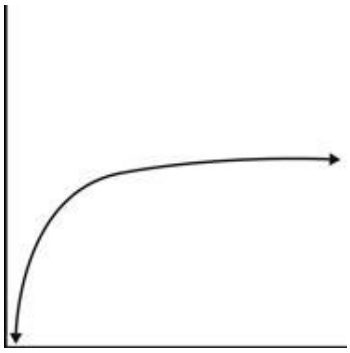
B.



C.



D.



96. **What point is the *x*-intercept of the line represented by the equation** $x - y = -2$ **?**

A. $(-2, 0)$

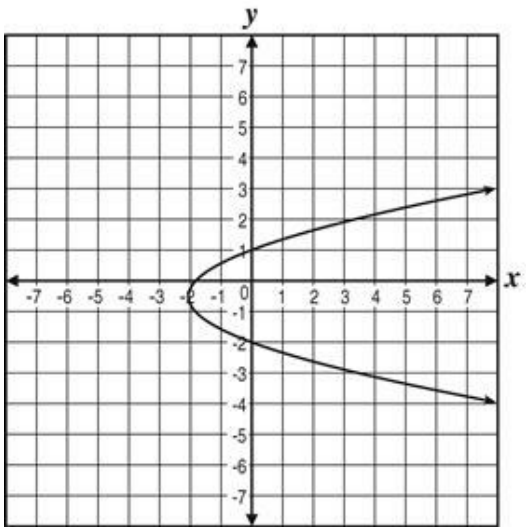
B. $(-1, 0)$

C. $(1, 0)$

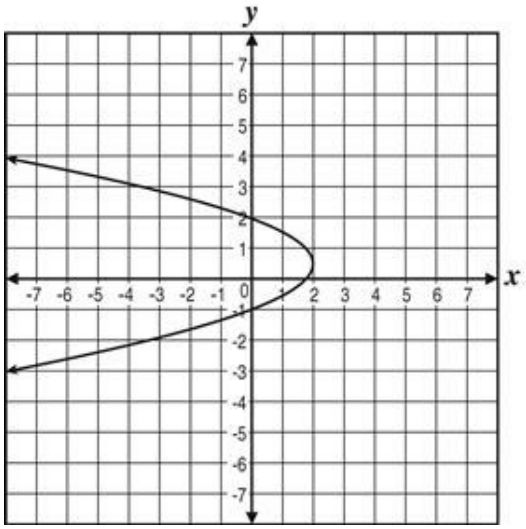
D. $(2, 0)$

97. **Which of the following graphs has *x*-intercepts of -1 and 2?**

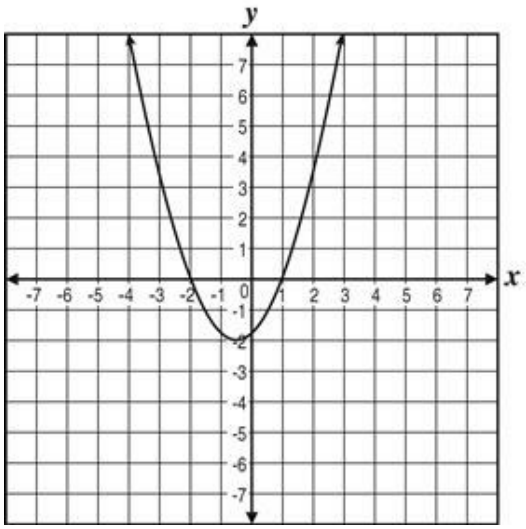
A.



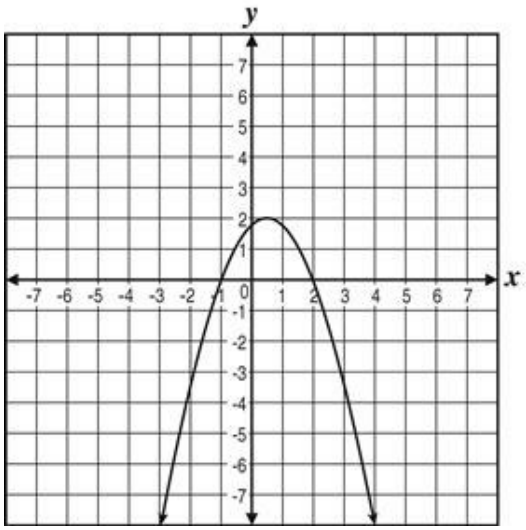
B.



C.



D.



98. **Given the equation $-2x + 6y = 24$, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept $= -12$ and *y*-intercept $= 4$

B. *x*-intercept $= -4$ and *y*-intercept $= 12$

C. *x*-intercept $= 4$ and *y*-intercept $= -12$

D. *x*-intercept $= 12$ and *y*-intercept $= -4$

99. **The range of *y* = f(*x*) decreases in the interval $-1 < x < 1$ and increases in the intervals $x > 1$ and $x < -1$. Which of the following could be an equation for *f*(*x*)?**

A. $f(x) = x^2 - 2x + 1$

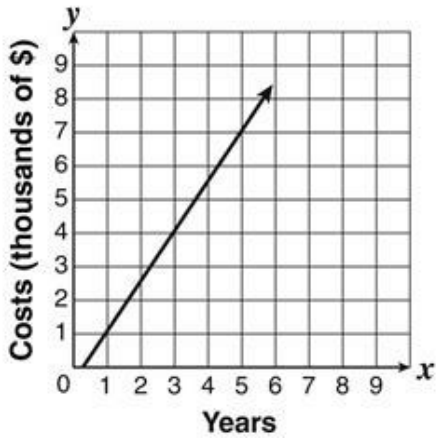
B. $f(x) = x^2 + 2x + 1$

C. $f(x) = x^3 + 3x + 5$

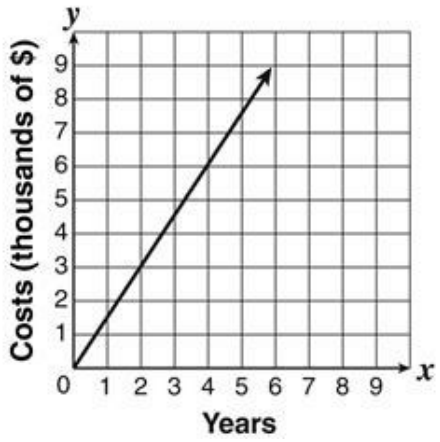
D. $f(x) = x^3 - 3x + 5$

100. **The price of a new car increases $1,500 per year over a 5-year period. Which graph represents the increase in the price of a new car over a 5-year period?**

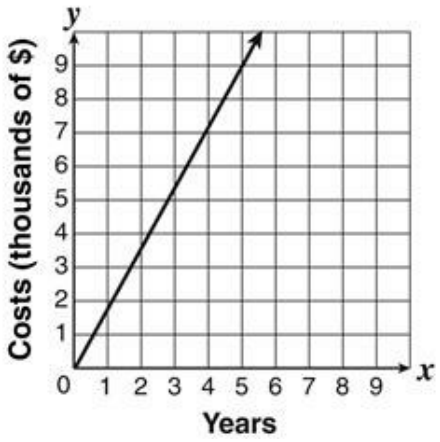
A.



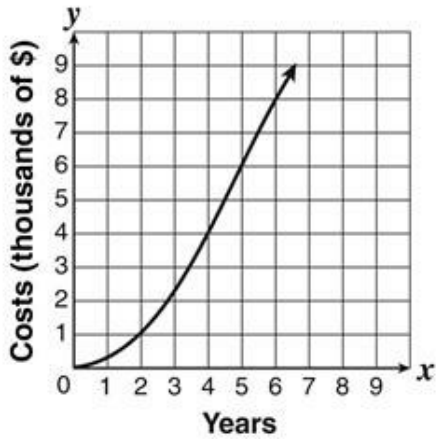
B.



C.



D.



101. Which function below has a vertex at ($^{-}3$, 2) and a zero at $x = {}^{-}2$?

A. $f(x) = x^2 + 6x + 11$

B. $f(x) = x^2 - 6x + 11$

C. $f(x) = {}^{-}2x^2 - 12x - 16$

D. $f(x) = {}^{-}2x^2 + 12x - 16$

102. **Look at the equation below.**

$y = -Ax + 5$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{5}{3}$?

A. $\frac{5}{3}$

B. 3

C. $\frac{10}{3}$

D. 5

103. **What are the *x*- and *y*-intercepts of the graph of $x = 6 + \frac{1}{3}y$?**

A. *x*-intercept = -6 and *y*-intercept = 18

B. *x*-intercept = 6 and *y*-intercept = -18

C. *x*-intercept -18 an *y*-intercept = 6

D. *x*-intercept 18 and *y*-intercept = -6

104. **Which coordinate pair represents the *x*-intercept of the graph of the equation $4x - 3y = 12$?**

A. $(-3,\ 0)$

B. $(0,\ -4)$

C. $(3,\ 0)$

D. $(0,\ 4)$

105. **The graph of which of the following equations has *x*-intercepts of 1 and –1?**

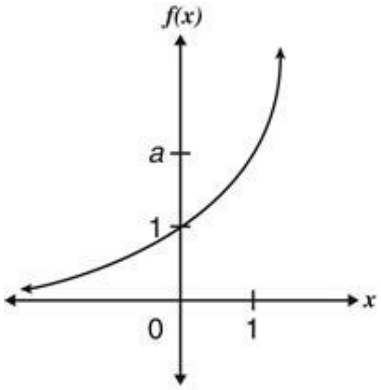
A. $y + 1 = x$

B. $y - 1 = x$

C. $y + 1 = x^2$

D. $x + 1 = y^2$

106. **The coordinate grid below shows the graph of $f(x) = a^x$.**



What appears to be the value of *f*(*x*) as *x* approaches 1 from a negative direction?

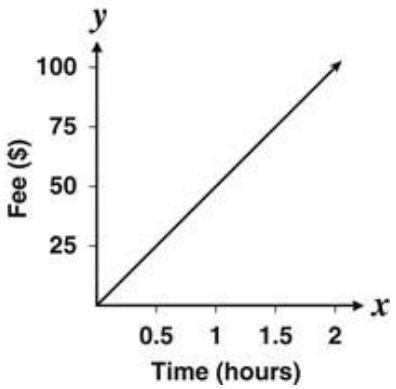
A. 0
B. 1
C. *a*
D. ∞

107. **What is the *y*-intercept of the line defined by the equation $y + 3x - 4 = 0$?**

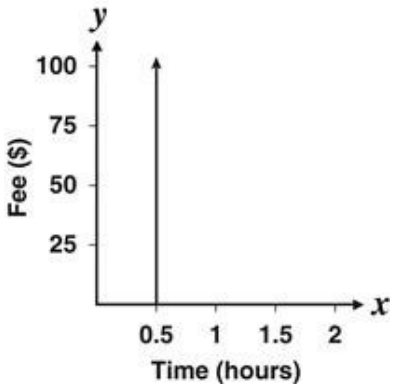
A. -4
B. $-\frac{4}{3}$
C. $\frac{4}{3}$
D. 4

108. **A piano teacher charges $25 for a half-hour lesson. Which graph represents the relationship between the time spent teaching piano and the teacher's fee?**

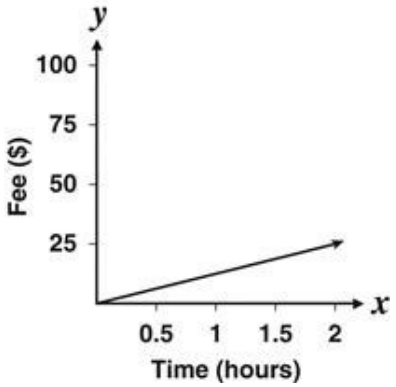
A.



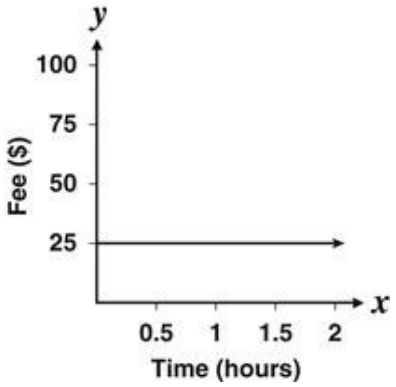
B.



C.



D.



109. The height of a football, in feet, t seconds after it is kicked into the air off of a tee, is modeled by the function $h(t) = -16t^2 + 35t + 0.25$. What is the ***approximate*** maximum height of the football?

A. 1.1 feet

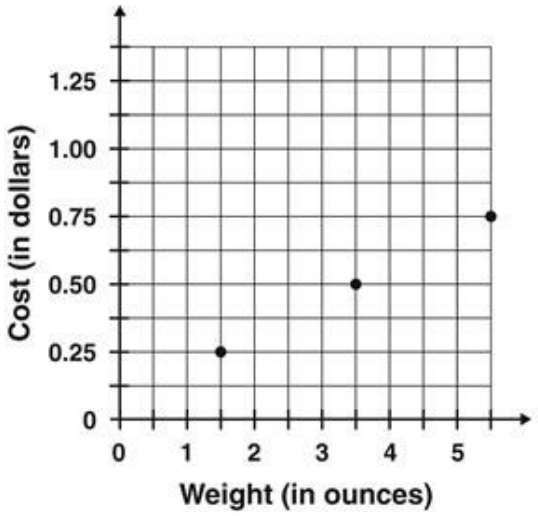
B. 2.2 feet

C. 19.4 feet

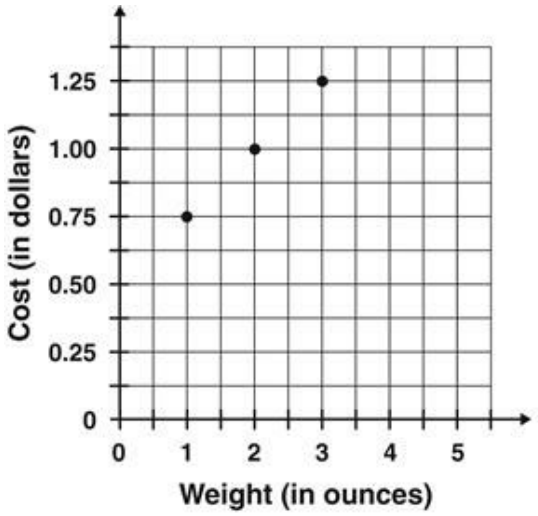
D. 35.0 feet

110. **Henry purchased 3 ounces of jawbreakers for $0.75. Which graph best represents the relationships between the cost of the jawbreakers and their weight?**

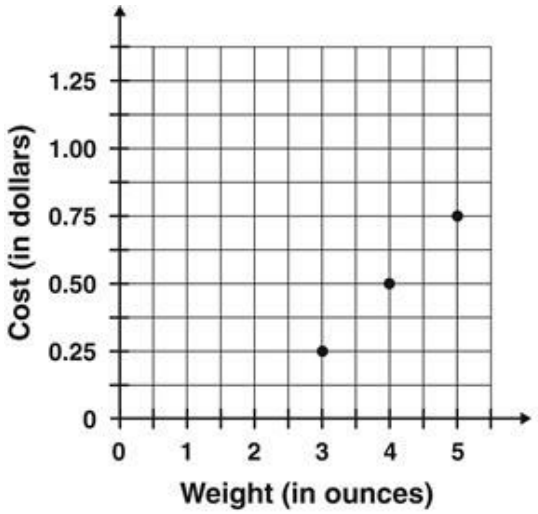
A.



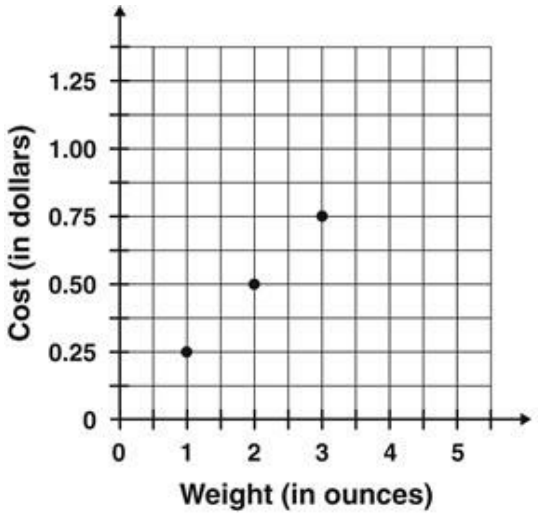
B.



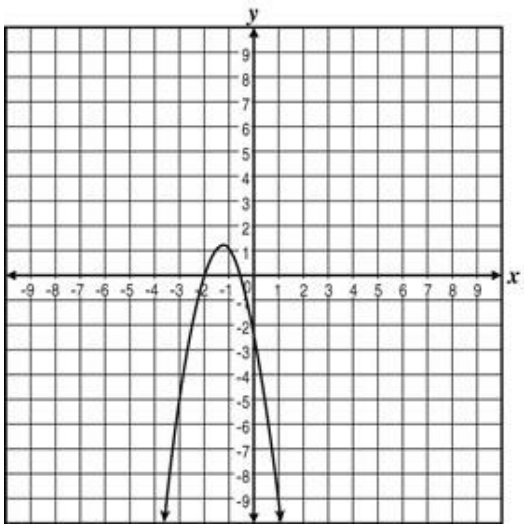
C.


1.25
1.00
0.75
0.50
0.25
0
Cost (in dollars)
0
1
2
3
4
5
Weight (in ounces)

D.


1.25
1.00
0.75
0.50
0.25
0
Cost (in dollars)
0
1
2
3
4
5
Weight (in ounces)

111. **The graph below represents the function** $f(x) = -2x^2 - 5x - 2$.



Which statement is true?

A. There are no *y*-intercepts.

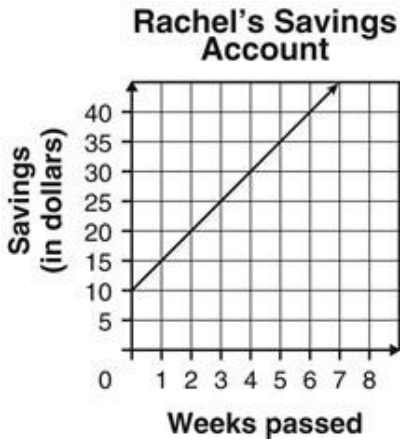
B. There are no *x*-intercepts.

C. There is a *y*-intercept at (0, – 2).

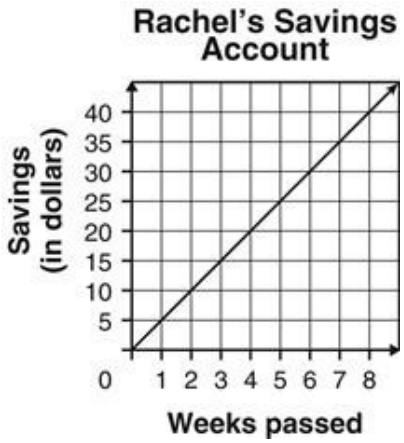
D. There is a *x*-intercept at (0, – 2).

112. **Rachel starts with $10 in her savings account. When one week has passed, she plans to have added another $5 to her account. She will continue to add $5 each week after that. Which graph represents the amount in her savings account over time?**

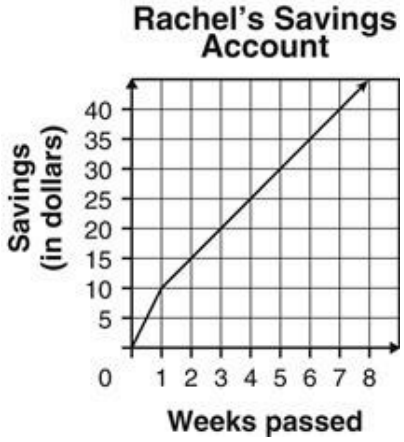
A.



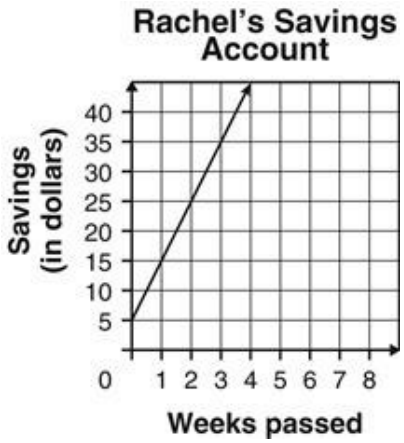
B.



C.



D.



113. The table below shows the distance Chris is located from his school at different times.

Time (minutes)	**Distance** (miles)
0	20
3	18
6	16
9	14
12	12
15	10

Assuming a linear relationship, how long will it take Chris to get to school?

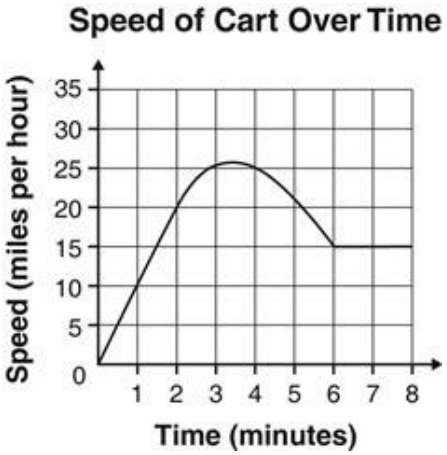
A. 20 minutes

B. 24 minutes

C. 27 minutes

D. 30 minutes

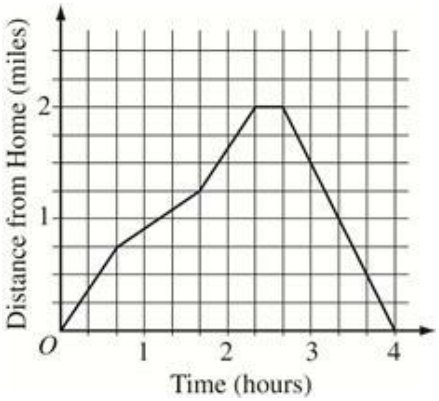
114. **The graph shows the speed of a cart over a period of several minutes.**



At approximately what time did the speed of the cart begin to decrease?

A. 3.0 minutes
B. 3.5 minutes
C. 6.0 minutes
D. 8.0 minutes

115. **The graph below shows Amy's distance from home on an afternoon hike.**



How many miles from home was Amy after hiking for 3 hours?

A. 1.5
B. 2
C. 2.5
D. 4

116. Jim borrowed $850 to purchase a stereo system for his car. He has been making payments each week for the last four weeks. The chart below shows the history of his loan balance.

Week	Balance of Loan
Original Price	$850
1	$775
2	$700
3	$625
4	$550

In the linear function that models these data, *x* represents the week and *y* represents the balance of the loan. What is the slope of the function?

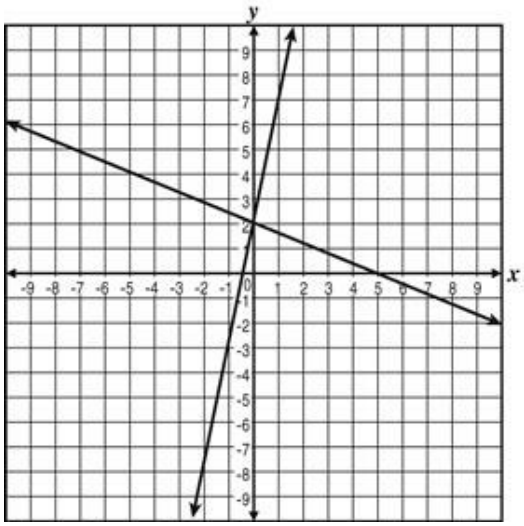
A. -850

B. -75

C. 75

D. 850

117. **What do the two lines in the graph below have in common?**



A. *y*-intercept
B. slope
C. equation of the lines
D. *x*-intercept

118. **The graph of which equation below is symmetric with respect to the *x*-axis?**

A. $x = \pm\sqrt{6y}$

B. $y = x^5 + 7x$

C. $x = y^4 - y^2$

D. $y = |9 - x|$

119. A ball is thrown into the air with a speed of 32 feet per second. The function $h = 32t - 16t^2$ models the height of the ball after t seconds. How many seconds does it take for the ball to reach its maximum height?

A. 0.75 second

B. 1 second

C. 2 seconds

D. 4 seconds

120. Which of these statements **best** describes the function below?

$g(x) = -3x^2 + 3$

A. $x = 0$ is the axis of symmetry.

B. $x = 3$ is the axis of symmetry.

C. The maximum value of $g(x)$ is 0.

D. The minimum value of $g(x)$ is 3.

121. What is the minimum value of the function $f(x) = x^2 - 6x + 7$?

A. $^{-}3$

B. $^{-}2$

C. 3

D. 7

122. **What point is the *y*-intercept of the line represented by the equation** $9x + y = 9$?

A. $(0, 1)$

B. $(0, 9)$

C. $(1, 0)$

D. $(9, 0)$

123. **Given the equation $-2x + 4y = 6$, what are the *x*- and *y*-intercepts of the graph?**

A. $x\text{-intercept} = -3 \text{ and } y\text{-intercept} = \frac{3}{2}$

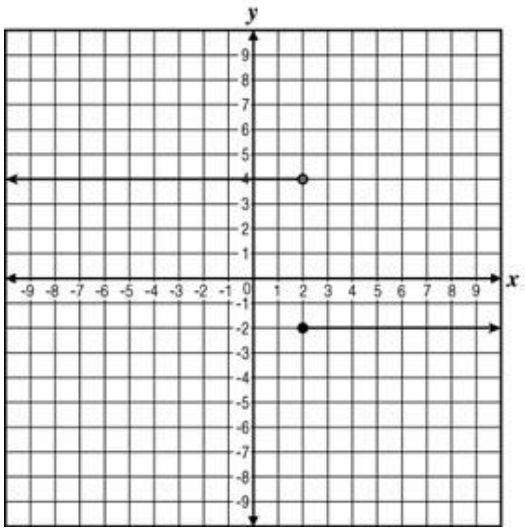
B. $x\text{-intercept} = -\frac{3}{2} \text{ and } y\text{-intercept} = 3$

C. $x\text{-intercept} = \frac{3}{2} \text{ and } y\text{-intercept} = -3$

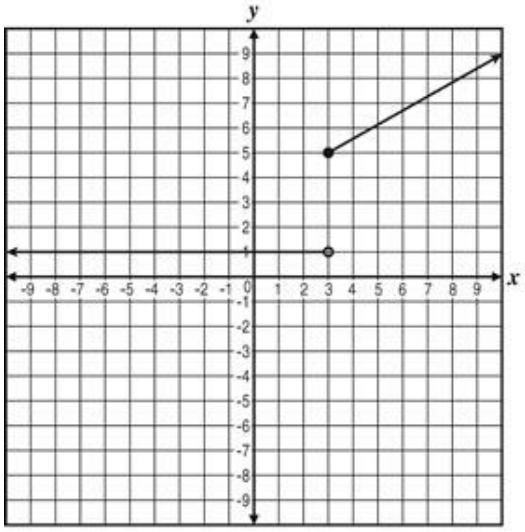
D. $x\text{-intercept} = 3 \text{ and } y\text{-intercept} = -\frac{3}{2}$

124. **In which graph is the function continuous between $x = 0$ and $x = 5$?**

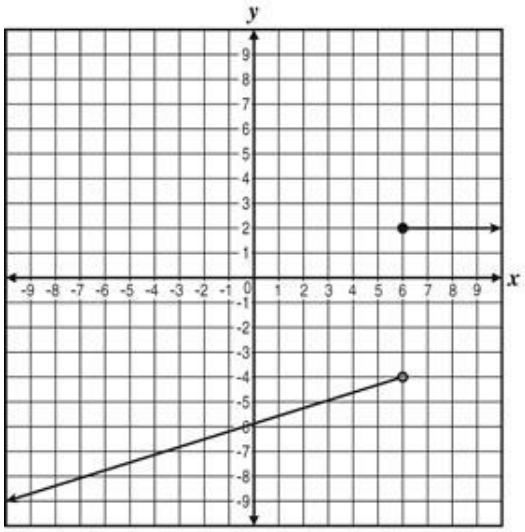
A.



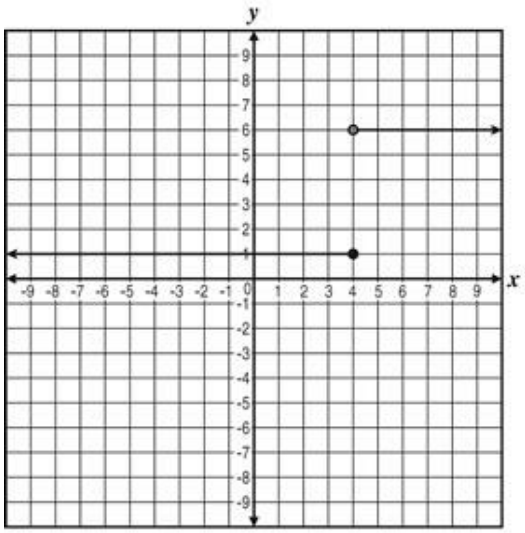
B.



C.

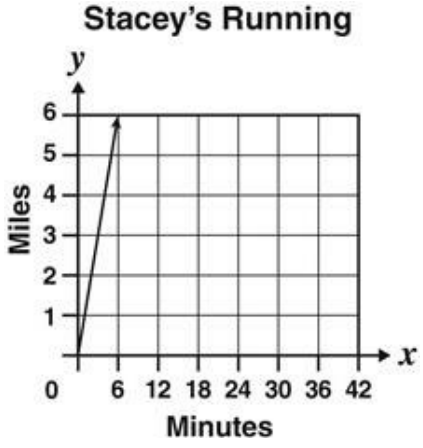


D.

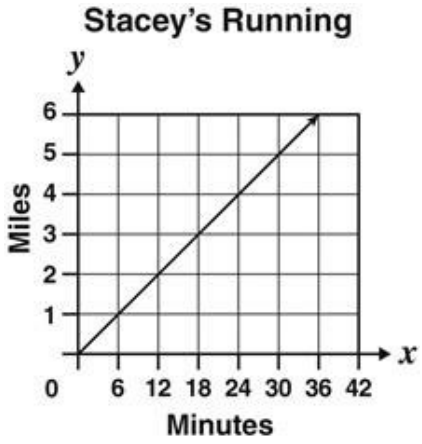


125. **It takes Stacey 6 minutes to run 1 mile. At this same rate, which graph correctly represents how long it takes her to run *y* number of miles?**

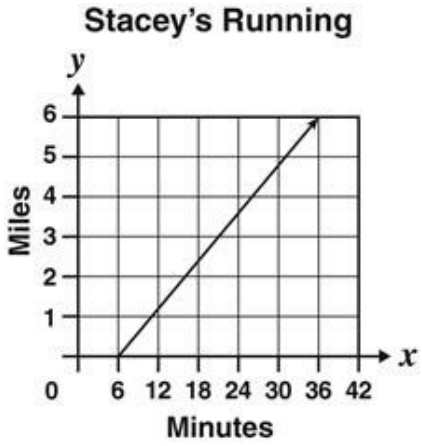
A.



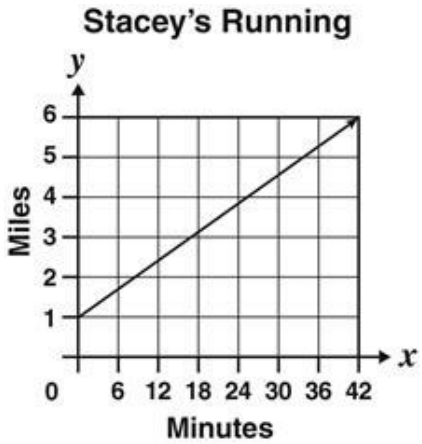
B.



C.



D.



126. **Which statement describes the graph of** $f(x) = x^2 - 2x - 3$?

A. a line with an *x*-intercept of $(-1, 0)$

B. a line with an *x*-intercept of $(-3, 0)$

C. a parabola with an *x*-intercept $(-1, 0)$

D. a parabola with an *x*-intercept of $(-3, 0)$

127. **Which ordered pair represents the *x*-intercept of the graph of** $y = \frac{1}{2}x + 3$?

A. (3, 0)
B. (0, 3)
C. (0, −6)
D. (−6, 0)

128. **What are the *x*-intercept and *y*-intercept of** $-x + 5y = 10$?

A. $x\text{–intercept} = -10 \text{ and } y\text{–intercept} = 2$
B. $x\text{–intercept} = -2 \text{ and } y\text{–intercept} = 10$
C. $x\text{–intercept} = 2 \text{ and } y\text{–intercept} = -10$
D. $x\text{–intercept} = 10 \text{ and } y\text{–intercept} = -2$

129. **What are the *x*-intercept and *y*-intercept of the graph of the equation** $3x - 2y = 1$?

A. *x*-intercept of $-\frac{1}{3}$ and *y*-intercept of $-\frac{1}{2}$
B. *x*-intercept of $-\frac{1}{3}$ and *y*-intercept of $\frac{1}{2}$
C. *x*-intercept of $\frac{1}{3}$ and *y*-intercept of $-\frac{1}{2}$
D. *x*-intercept of $\frac{1}{3}$ and *y*-intercept of $\frac{1}{2}$

130. **What are the *x*– and *y*–intercepts of the graph defined by the equation** $y = -3x + 15$?

A. *x*–intercept: (– 5, 0), *y*–intercept: (0, 15)
B. *x*–intercept: (– 3, 0), *y*–intercept: (0, 15)
C. *x*–intercept: (15, 0), *y*–intercept: (0, 5)
D. *x*–intercept: (5, 0), *y*–intercept: (0, 15)

131. **What is the *x*-intercept for the graph of** $y - 3x = -6$?

A. -6
B. -3
C. 1
D. 2

132. **Given the equation – 2*x* + 3*y* = 18, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept = – 9 and *y*-intercept = 6
B. *x*-intercept = – 6 and *y*-intercept = 9
C. *x*-intercept = 6 and *y*-intercept = – 9
D. *x*-intercept = 9 and *y*-intercept = – 6

133. **What happens to the value of *y* in the following equation as the value of *x* increases, where *x* is a whole number?**

$y = x^2 + 4$

A. The value of *y* approaches 0.

B. The value of *y* approaches $-\infty$.

C. The value of *y* approaches $+\infty$.

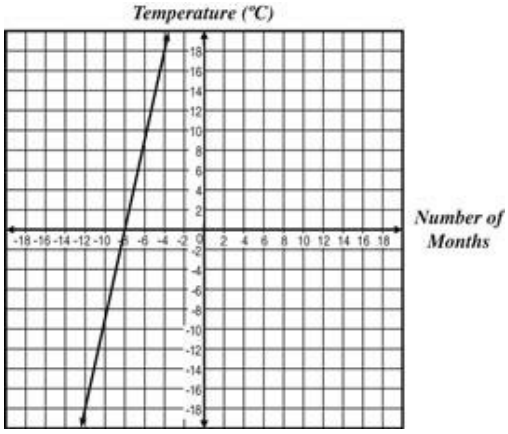
D. The value of *y* approaches -4.

134. **According to package information, frozen vegetables will stay fresh for different amounts of time if stored at different temperatures as shown in the chart below.**

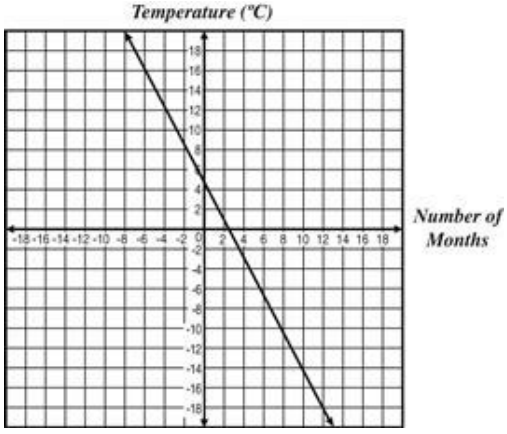
Number of Months	Temperature (°C)
0.4	5
2	2
12	– 18

Which graph shows the relationship between the number of months and the temperature?

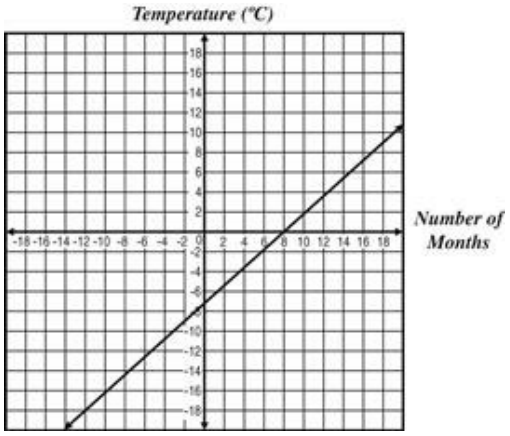
A.



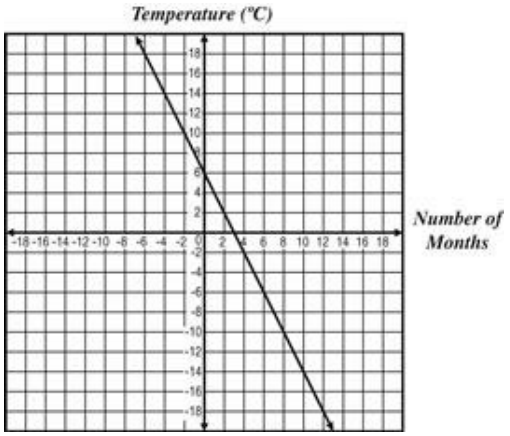
B.



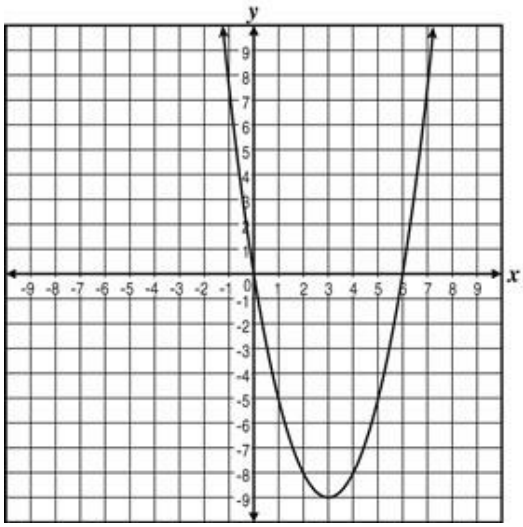
C.



D.



135. **The graph of the parabola $y = x^2 - 6x$ is shown below.**



This graph is symmetrical about which point or line?

A. the line $x = 0$
B. the line $x = 3$
C. the point (0, 0)
D. the point (3, – 9)

136. **What is the *y*-intercept of the graph of the equation $6x - 5y + 15 = 0$?**

A. $(0, -3)$

B. $\left(0, -\frac{5}{2}\right)$

C. $\left(0, \frac{6}{5}\right)$

D. $(0, 3)$

137. **Which statement about the graphs of $f(x) = 3x - 4$ and $g(x) = 3x + 4$ is true?**

A. The graphs of *f* and *g* have the same *x*-intercept.

B. The graphs of *f* and *g* have the same *y*-intercept.

C. The graphs of *f* and *g* are perpendicular.

D. The graphs of *f* and *g* are parallel.

138. Shane is filling a barrel with water. The table below shows the amount of water in the barrel after different amounts of time.

Time (seconds)	**Amount of Water** (cubic inches)
1	25
2	32
3	39
4	46

Assuming Shane filled the barrel at a constant rate, how much water was initially in the barrel?

A. 18 cubic inches

B. 16 cubic inches

C. 14 cubic inches

D. 12 cubic inches

139. **Given the equation $-x + 6y = 7$, what are the *x*-intercept and *y*-intercept of the graph?**

A. *x*-intercept $= 7$ and *y*-intercept $= -\frac{7}{6}$

B. *x*-intercept $= \frac{7}{6}$ and *y*-intercept $= -7$

C. *x*-intercept $= -\frac{7}{6}$ and *y*-intercept $= 7$

D. *x*-intercept $= -7$ and *y*-intercept $= \frac{7}{6}$

140. **Which of the following functions has rotational symmetry with respect to the origin?**

A. $y = \sqrt{x}$

B. $y = \sqrt{1 - x^2}$

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

D. $y = x^2 + 3$

141. **Which point is the *x*-intercept of the line represented by the equation** $x + 3y = 3$?

A. (0, 1)

B. (0, 3)

C. (1, 0)

D. (3, 0)

142. **What are the *x*- and *y*-intercepts of the graph** of $7y - \frac{1}{2}x = 14$?

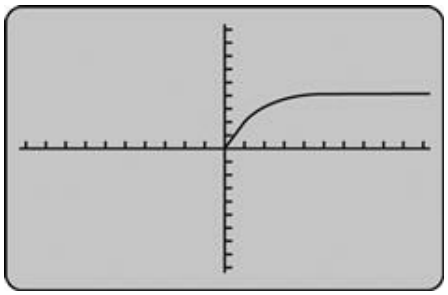
A. $x - \text{intercept} = -2,\ y - \text{intercept} = 28$

B. $x - \text{intercept} = 2,\ y - \text{intercept} = -28$

C. $x - \text{intercept} = 28,\ y - \text{intercept} = -2$

D. $x - \text{intercept} = -28,\ y - \text{intercept} = 2$

143. **The graphing calculator screen below represents time on the horizontal axis and the distance traveled by an object on the vertical axis.**



What does the graph indicate about the motion of an object?

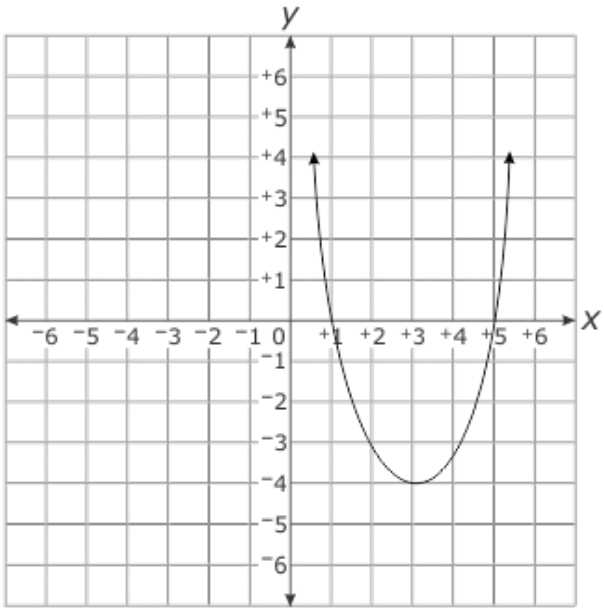
A. The object increased in speed and then stopped.

B. The object decreased in speed and then stopped.

C. The object decreased in speed and then continued at a constant speed.

D. The object increased in speed and then continued at a constant speed.

144. What is the minimum value of the function graphed below?



A. 5

B. 3

C. 1

D. $^{-}4$

145. **What is the *y*-intercept of the line given by** $3x + 2y = 8$ **?**

A. (0, 2)
B. (0, 3)
C. (0, 4)
D. (0, 8)

146. The amount of profit a company makes if they spend x dollars on advertising is modeled by the function $P(x) = {}^{-}4x^2 + 800x + 2{,}000$. How much should the company spend on advertising to maximize profit?

A. $100

B. $2,000

C. $10,000

D. $42,000

147. **Which of the following functions is symmetric with respect to the *y*–axis, the *x*–axis, and the line *y* = *x*?**

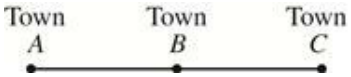
A. $x + y^2 = 4$

B. $y = \sqrt{x - 3}$

C. $xy = 1 - x^2y^2$

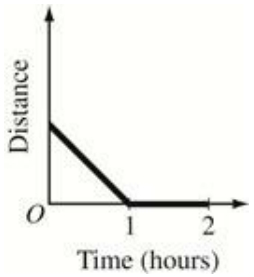
D. $x^2 + y^2 = 9$

148. **Towns *A*, *B*, and *C* lie on a straight line, as shown below. Jack and Arthur start at Town *B* and drive for an hour from Town *B* to Town *C*, where they stop for an hour to eat lunch.**

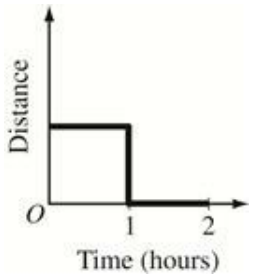


Which of the following graphs could represent their distance from Town *A* during these two hours?

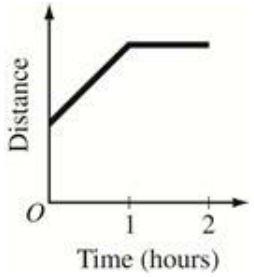
A.



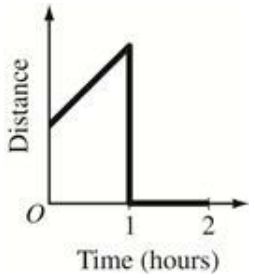
B.



C.



D.



149. **What is the *x*-intercept of the graph of the equation $x - 2y = 4$?**

A. -2
B. $-\frac{1}{2}$
C. $\frac{1}{4}$
D. 4

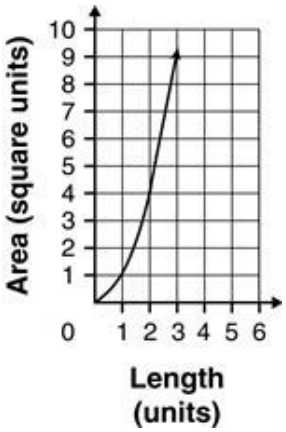
150. **What point is the *y*-intercept of the line represented by the equation $4x + 5y = 20$?**

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

151. **What point is the *x*-intercept of the line represented by the equation $3x - 4y = -24$?**

A. $(6, 0)$
B. $(3, 0)$
C. $(-4, 0)$
D. $(-8, 0)$

152. **The relationship between the length of the side of a square and its area is graphed below.**



If the area of a square is between 5 square units and 6 square units, which range best describes the length of each side?

A. between 1 unit and 2 units
B. between 2 units and 3 units
C. between 3 units and 4 units
D. between 5 units and 6 units

153. **A linear equation is shown.**

$y = Ax + 7$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{7}{2}$?

A. -2
B. $-\frac{1}{2}$
C. $\frac{7}{2}$
D. 7

154. **What is the *y*-intercept of the graph of the equation $2x + 5y = 1$?**

A. $-\frac{2}{5}$
B. $\frac{1}{5}$
C. $\frac{1}{2}$
D. 1

155. **On which interval is the function $f(x) = -x^3 - x^2$ increasing?**

A. $x < -1$
B. $-1 < x < 0$
C. $0 < x < 1$
D. $x > 1$

156. **Which statement about the graphs of $f(x) = -3x + 6$ and $g(x) = -3x - 6$ is true?**

A. Functions *f* and *g* have the same *x*-intercept but different *y*-intercepts.
B. Functions *f* and *g* have the same *y*-intercept but different *x*-intercepts.
C. Functions *f* and *g* have the same *x* and *y*-intercept but different slopes.
D. Functions *f* and *g* have the same slope but different *x*-and *y*-intercepts.

157. During which interval is the function $f(x) = x^2 - 9$ decreasing?

A. $x < 0$
B. $x > 0$
C. $x < 3$
D. $x > 3$

158. **Look at the equation below.**

$y = -Ax + 8$

For what value of *A* will the graph of the equation have an *x*-intercept of 6?

A. $-\frac{4}{3}$

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

C. 6

D. 8

159. Which function has the following features?

- symmetry over the *y*-axis
- increasing for all $x < 0$
- *y*-intercept of 0

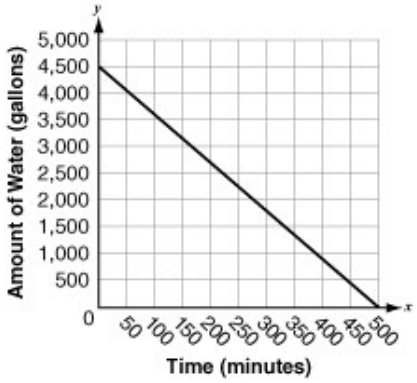
A. $y = x^3 + x$

B. $y = -x^3 - x$

C. $y = x^4 + x^2$

D. $y = -x^4 - x^2$

160. The water in a swimming pool is being drained. The function shown in the graph below represents the amount of water in gallons that remains in the pool after *x* minutes.



At what rate does the water drain?

A. 9 gallons per minute

B. 500 gallons per minute

C. 540 gallons per minute

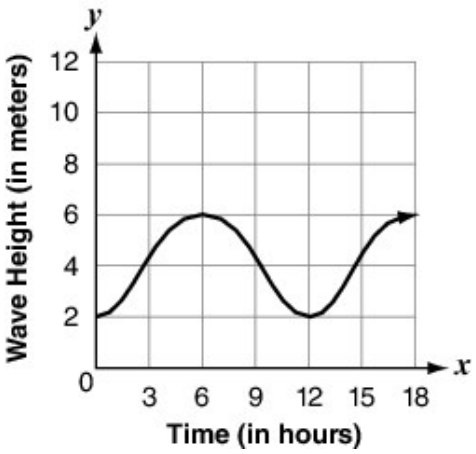
D. 4,500 gallons per minute

161. **What is the *x*-intercept of the graph of** $5x - y - 15 = 0$ **?**

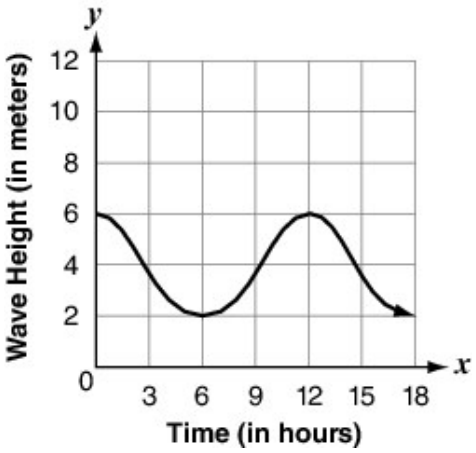
A. $(0,\ 15)$
B. $(0, -15)$
C. $(3,\ 0)$
D. $(-3,\ 0)$

162. Starting at low tide, the wave height above sea level was recorded at a beach during an 18-hour cycle. At low tide, the height of a wave was 2 meters (m) above sea level. After 6 hours, at high tide, the height of a wave was 6 m above sea level. Which graph **best** models the height of these waves with respect to time?

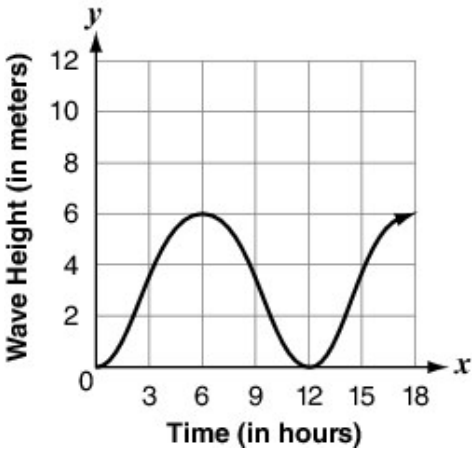
A.



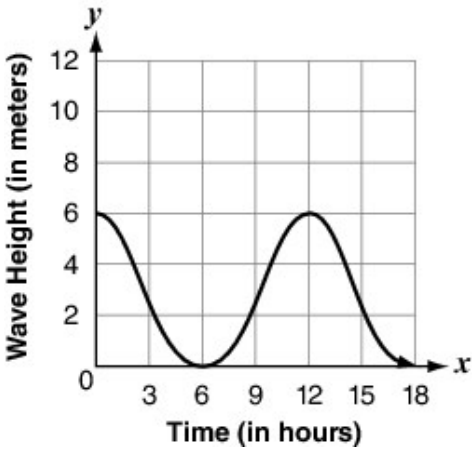
B.



C.



D.



163. The height above the ground attained by a football (in feet) after it is kicked is given by the equation $h(t) = -16t^2 + 32t$, where t is the time in seconds. Which statement is **true**?

A. The ball returns to the ground 2 seconds after it was kicked.

B. The ball reaches a maximum height of 1 foot above the ground.

C. The height of the ball above the ground is decreasing from time $t = 0$ to $t = 1$ seconds.

D. The height of the ball above the ground is increasing from time $t = 0$ to $t = 16$ seconds.

164. **Which set of ordered pairs represents the *x*-intercept and *y*-intercept of the graph of** $y = 2x - 12$?

A. $(6, 0)$ and $(0, 12)$

B. $(6, 0)$ and $(0, -12)$

C. $(-6, 0)$ and $(0, 12)$

D. $(-6, 0)$ and $(0, -12)$

165. **Look at the equation below.**

$y = -Ax + 10$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{10}{3}$?

A. 3

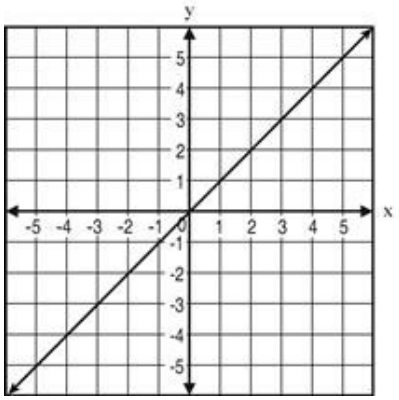
B. $\frac{10}{3}$

C. $\frac{20}{3}$

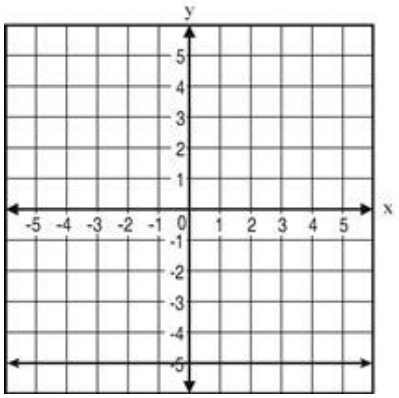
D. 10

166. **Which graph has a *y*-intercept of 5?**

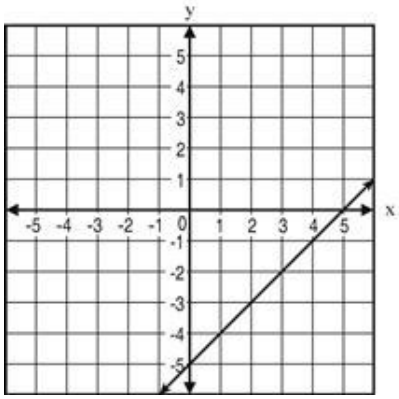
A.



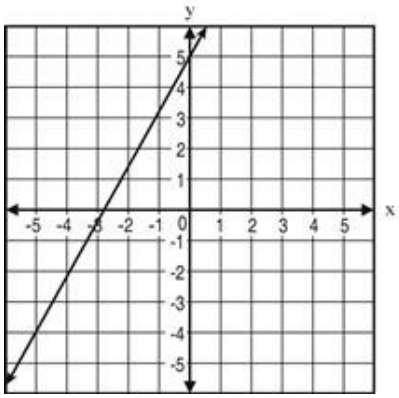
B.



C.



D.



167. **Which of the following functions increases for all values of *x* in the domain?**

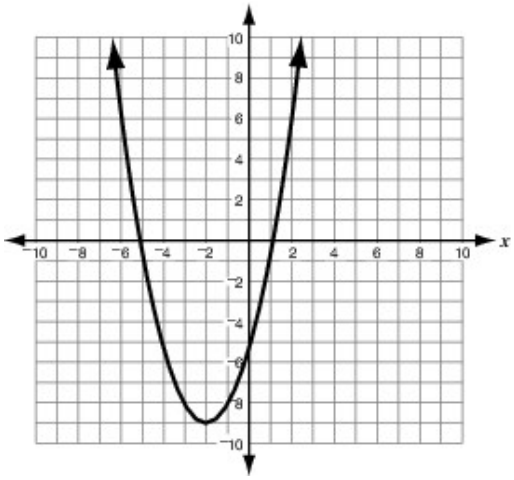
A. $f(x) = x^4$

B. $f(x) = 5^x$

C. $f(x) = \frac{6}{x}$

D. $f(x) = \sin(7x)$

168. During which interval is the function shown on the graph below decreasing?



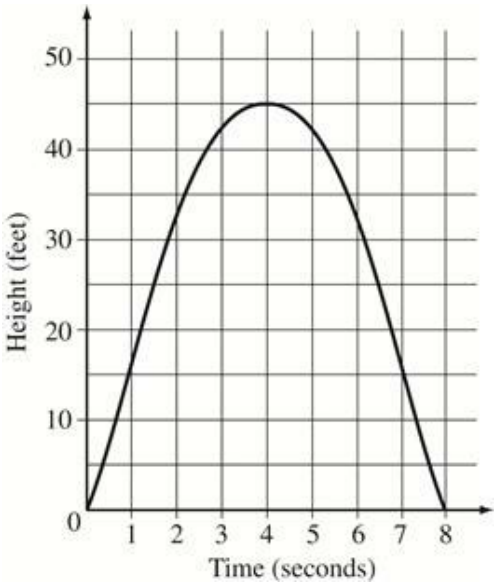
A. $(\infty, -2)$

B. $(-9, 0)$

C. $(-5, 1)$

D. $(-2, \infty)$

169. **A ball is thrown into the air. The graph below shows the height of the ball, in feet, with respect to time, in seconds.**



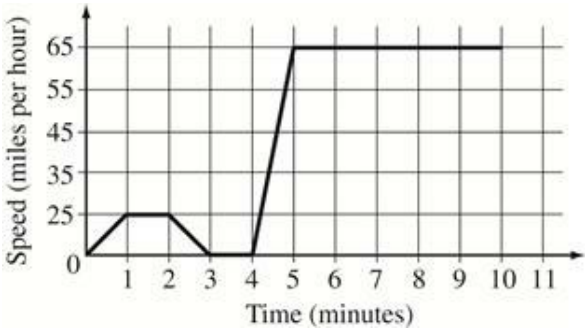
Which of the following statements is not true?

A. The ball is in the air for 8 seconds.
B. The ball is at the same height at 3 seconds and at 5 seconds.
C. The ball reaches a maximum height of 40 feet.
D. The ball takes the same amount of time to go up as it takes to come down.

170. **The graph of which of the following functions is symmetric with respect to the origin?**

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

171. **The graph below shows the speed of a car that is driven through a town and then on a major highway.**



During which of the following time intervals was the car stopped at a traffic light?

A. Between 0 and 1 minute
B. Between 1 and 2 minutes
C. Between 2 and 3 minutes
D. Between 3 and 4 minutes

172. **What are the *x*- and *y*-intercepts for $-x + 2y = 8$?**

A. $(-8, 0)$ and $(0, 4)$
B. $(4, 0)$ and $(0, 8)$
C. $(4, 0)$ and $(0, -8)$
D. $(8, 0)$ and $(0, -4)$

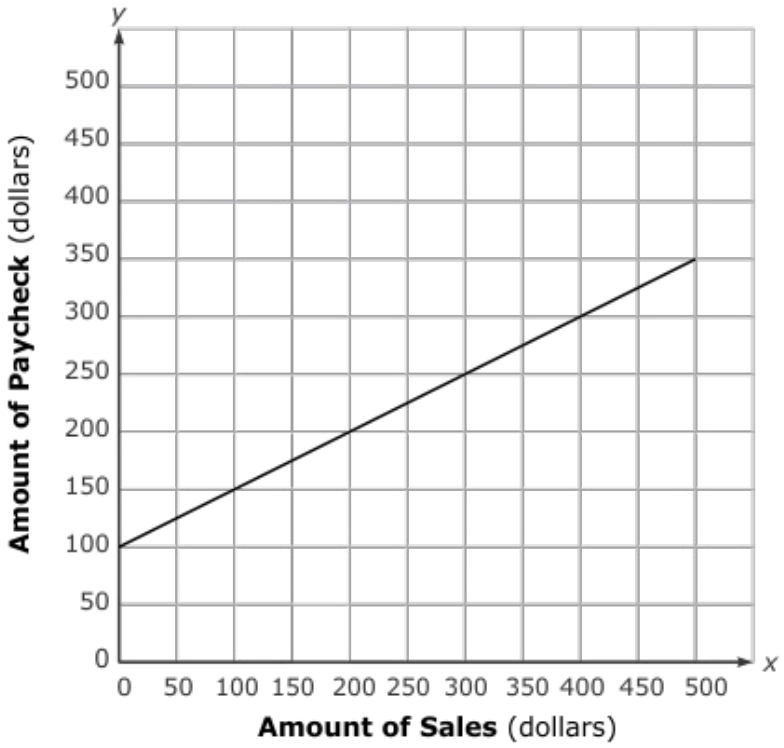
173. **Which point is the *x*-intercept of the line represented by the equation $3x + 6y = 18$?**

A. $(6, 0)$
B. $(3, 0)$
C. $(0, 6)$
D. $(0, 3)$

174. **What are the *x*- and *y*-intercepts of the graph of $2y - \frac{1}{2}x = 10$?**

A. $x\text{–intercept} = 5,\ y\text{–intercept} = -20$
B. $x\text{–intercept} = -5,\ y\text{–intercept} = 20$
C. $x\text{–intercept} = 20,\ y\text{–intercept} = -5$
D. $x\text{–intercept} = -20,\ y\text{–intercept} = 5$

175. The graph below shows the amount of Michael's paycheck based on a 40 hour work week, plus his commission from sales. Michael earns 50% of the total amount of sales that he makes.



Which is the ***best*** explanation of the *y*-intercept of the graph?

A. Michael's paycheck will be $100.00 when he makes no sales.

B. Michael's paycheck will be $0 when he makes $100 in sales.

C. Michael's paycheck will be $125.00 when he makes $50 in sales.

D. Michael's paycheck will be $150.00 when he makes $100.00 in sales.

176. **What is the *y*-intercept of the line defined by the equation** $3y + 4x - 3 = 0$?

A. -1

B. $-\frac{3}{4}$

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

D. 1

177. During which interval is the graph of $f(x) = -\frac{1}{2}x^2 + 3x - 2.5$ positive?

A. $1 < x < 5$

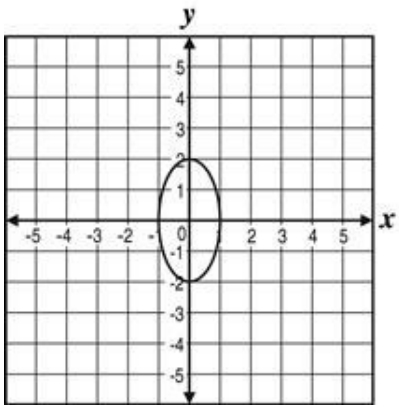
B. $1 \leq x \leq 5$

C. $x < 1$ and $x > 5$

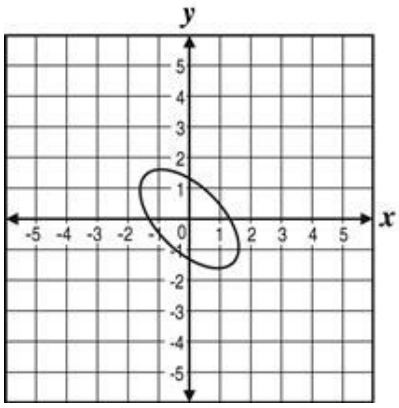
D. $x \leq 1$ and $x \geq 5$

178. **Which figure appears to be symmetric about the line $y = x$?**

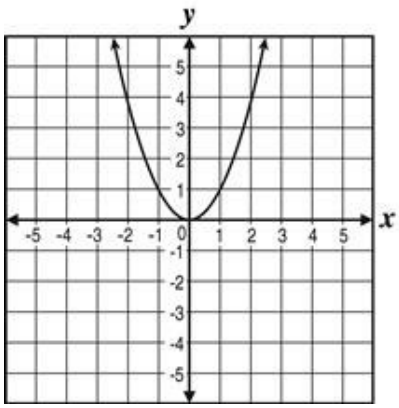
A.



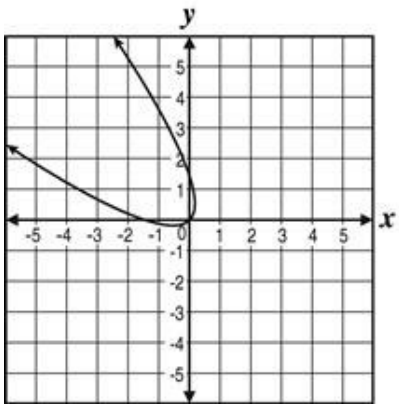
B.



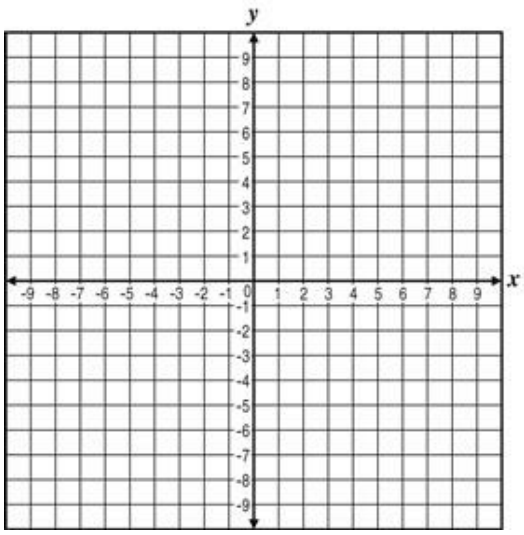
C.



D.



179. **What is the *y*-coordinate of the *y*-intercept for the graph of $2x - y = 10$?**

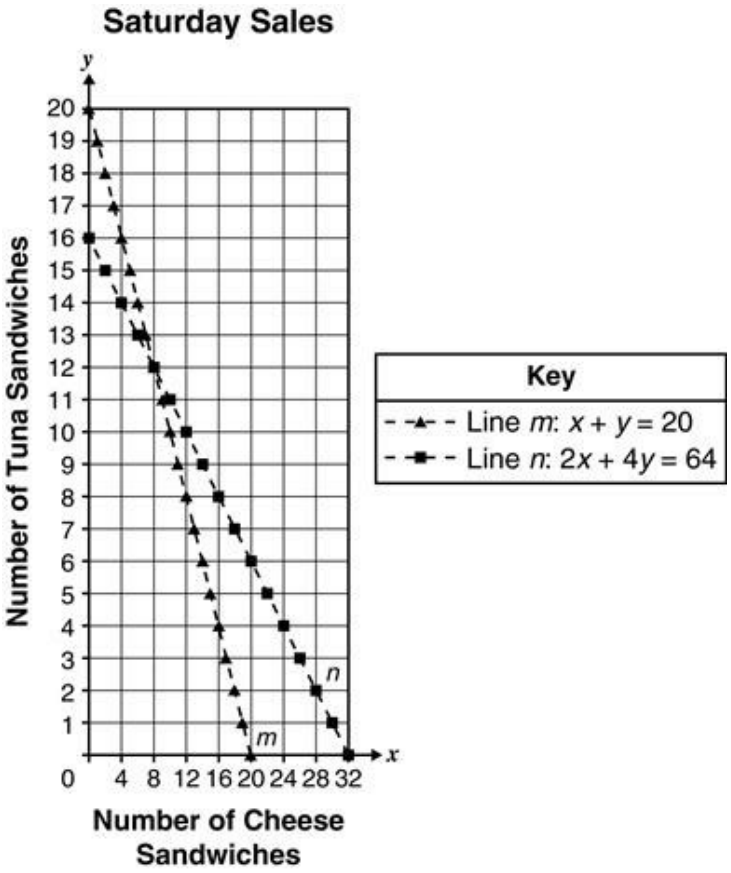


A. –10
B. 0
C. 5
D. 10

180. A rock is thrown up from the ground at a velocity of 84 feet per second. The formula $h = -16t^2 + 84t$ gives the rock's height in feet after t seconds. What is the maximum height of the rock?

A. 68 feet
B. 84 feet
C. 110 feet
D. 179 feet

181. **The soccer team sold a total of 20 sandwiches at the game on Saturday. The selling price of a cheese sandwich was $2, and the selling price of a tuna sandwich was $4. The sandwich sales totaled $64. The graph below represents this information.**



Based on the graph, which statement best describes the *y*-intercept of Line *m*?

A. $(0, 20)$: If no cheese sandwiches were sold, then 20 tuna sandwiches were sold.

B. $(20, 0)$: If no tuna sandwiches were sold, then 20 cheese sandwiches were sold.

C. $(0, 16)$: If no cheese sandwiches were sold, then 16 tuna sandwiches were sold for $64.

D. $(32, 0)$: If no tuna sandwiches were sold, then 32 cheese sandwiches were sold for $64.

182. **Look at the equation.**

$y = -Ax + 8$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{8}{3}$?

A. $\frac{8}{3}$

B. 3

C. $\frac{16}{3}$

D. 8

183. **Which of the following is the greatest interval upon which the range of $f(x) = 4x^3 - 6x + 2$ decreases?**

A. $x > \frac{\sqrt{2}}{2}$

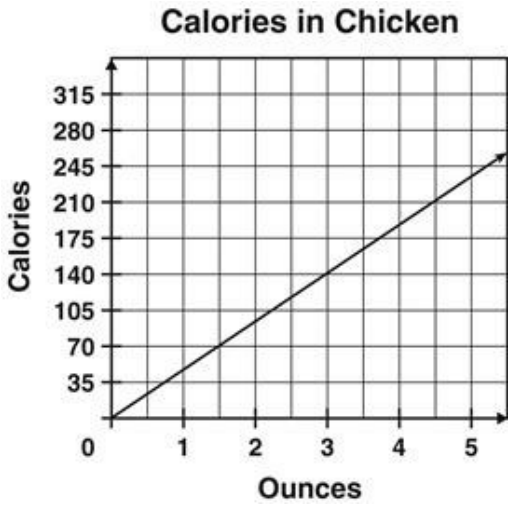
B. $x < -\frac{\sqrt{2}}{2}$

C. $x > \frac{\sqrt{2}}{2}$ or $x < -\frac{\sqrt{2}}{2}$

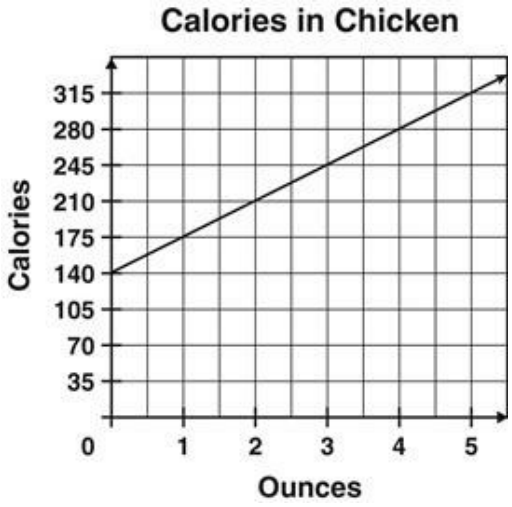
D. $-\frac{\sqrt{2}}{2} < x < \frac{\sqrt{2}}{2}$

184. **A 3-ounce serving of roasted chicken without the skin contains 140 calories. Based on this information, which graph shows the relationship between the number of ounces of roasted chicken without the skin and the number of calories in the chicken?**

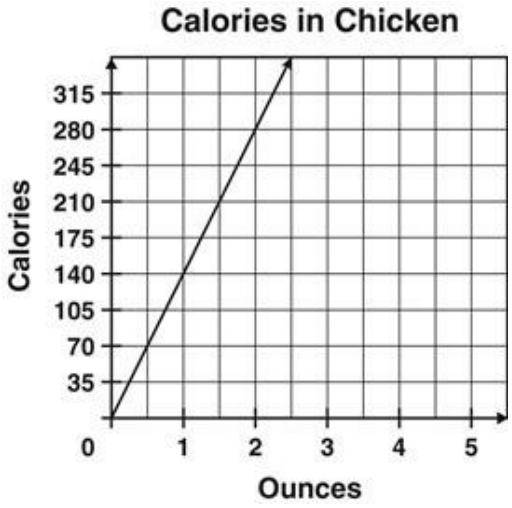
A.



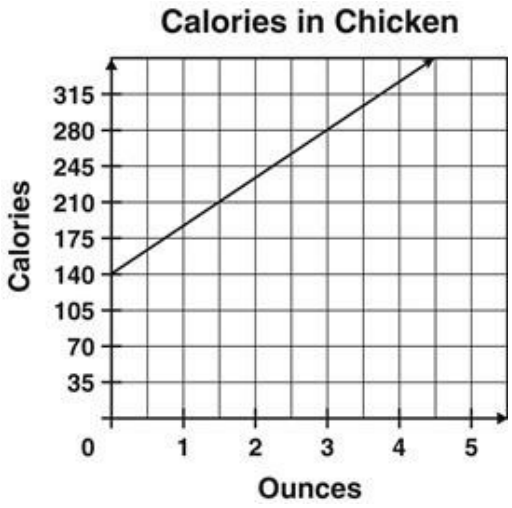
B.



C.



D.



185. **What point is the *y*-intercept of the line represented by the equation** $9x + 5y = 45$ **?**

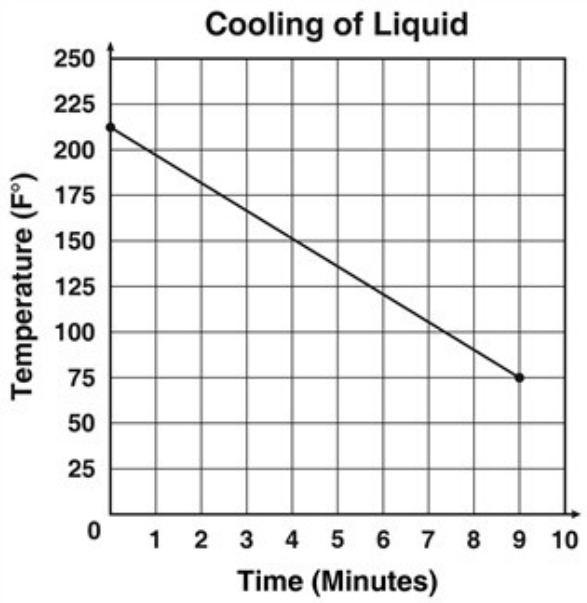
A. $(0, 5)$

B. $(0, 9)$

C. $(5, 0)$

D. $(9, 0)$

186. **The graph shows the temperature of a liquid as it cools to room temperature over time.**



Which quantity is the dependent quantity?

A. the time
B. the type of liquid
C. the amount of the liquid
D. the temperature of the liquid

187. **Which statement about the graphs of** $f(x) = 2x - 4$ **and** $g(x) = 3x - 6$ **is true?**

A. Functions *f* and *g* have the same *x*-intercept but different *y*-intercepts.
B. Functions *f* and *g* have the same *y*-intercept but different *x*-intercepts.
C. Functions *f* and *g* have the same *x*- and *y*-intercept but different slopes.
D. Functions *f* and *g* have the same slope but different *x*- and *y*-intercepts.

188. **What point is the *x*-intercept of the line represented by the equation** $3x + y = 3$ **?**

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

189. The table below shows the cost for a toy company to produce different amounts of toys.

Toys Produced	Cost
1,000	$122,000
3,000	$26,000
5,000	$10,000
7,000	$74,000

Assuming a quadratic relationship, ***about*** how many toys should the company produce to minimize costs?

A. 1,000

B. 4,000

C. 5,000

D. 6,000

190. **What point is the *x*-intercept of the line represented by the equation** $2x - 3y = -12$ **?**

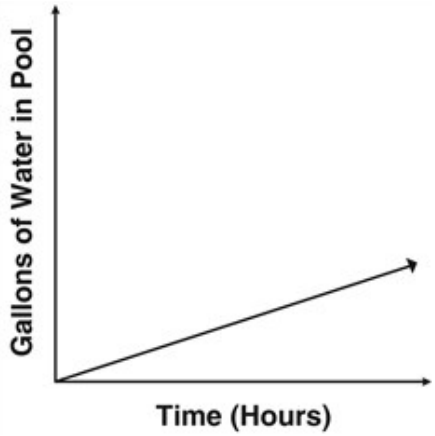
A. $(-6, 0)$

B. $(-3, 0)$

C. $(2, 0)$

D. $(4, 0)$

191. **Thomas is filling his backyard pool with water as modeled in the graph.**



Based on the graph, which of the following is the dependent quantity?

A. time in hours

B. number of days

C. gallons of water

D. rate of the water flow

192. **Given the equation $-x + 6y = 8$, what are the *x*- and *y*-intercepts of the graph?**

A. $x\text{-intercept} = -8 \text{ and } y\text{-intercept} = \frac{4}{3}$

B. $x\text{-intercept} = -\frac{4}{3} \text{ and } y\text{-intercept} = 8$

C. $x\text{-intercept} = \frac{4}{3} \text{ and } y\text{-intercept} = -8$

D. $x\text{-intercept} = 8 \text{ and } y\text{-intercept} = -\frac{4}{3}$

193. **Look at the equation below.**

$y = -Ax + 7$

For what value of *A* will the graph of the equation have an *x*-intercept of $\frac{7}{3}$?

A. $\frac{7}{3}$

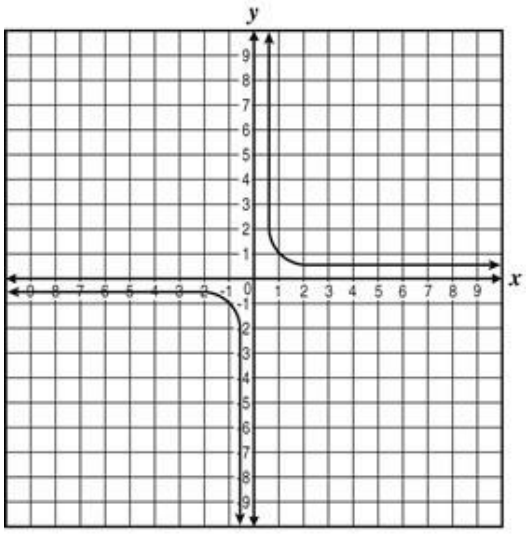
B. 3

C. $\frac{14}{3}$

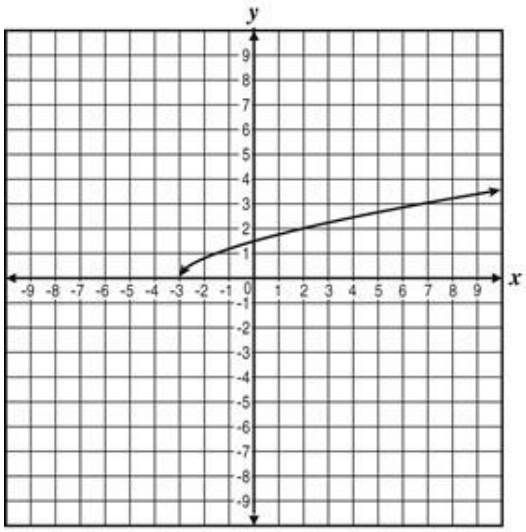
D. 7

194. **Which graph is an example of a noncontinuous function?**

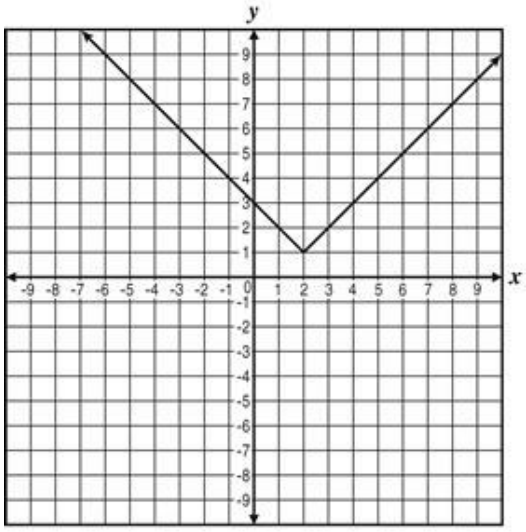
A.



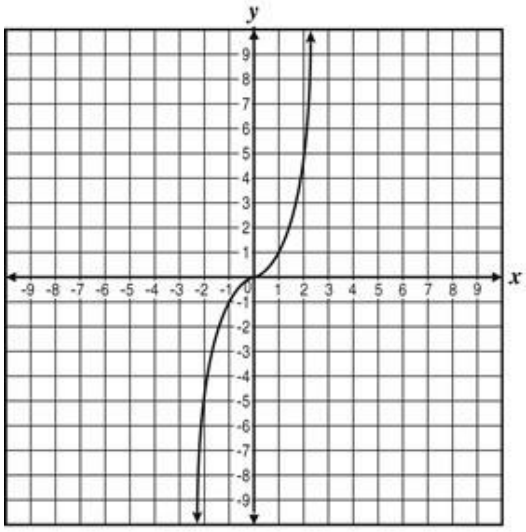
B.



C.

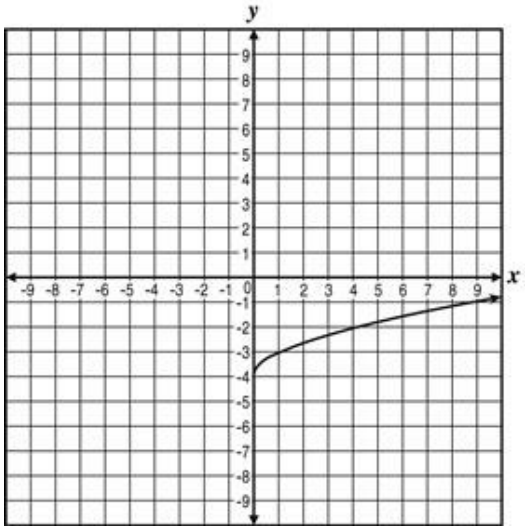


D.

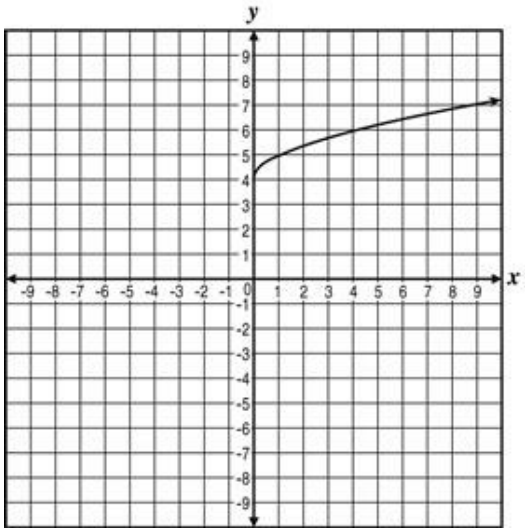


195. **Which is the graph of the function** $y = \sqrt{x} + 4$?

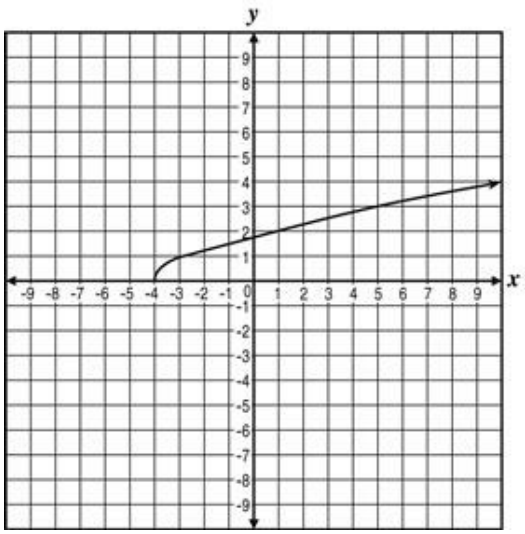
A.



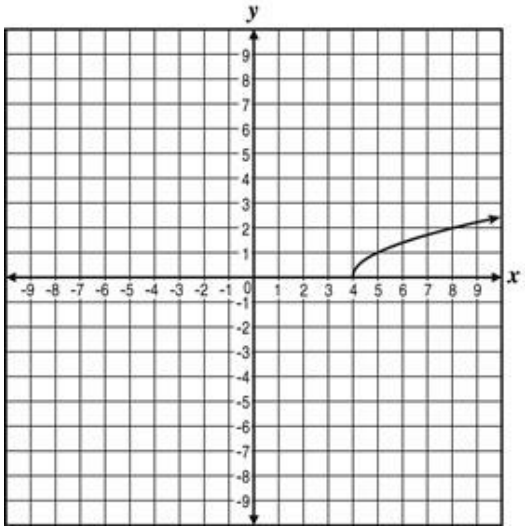
B.



C.

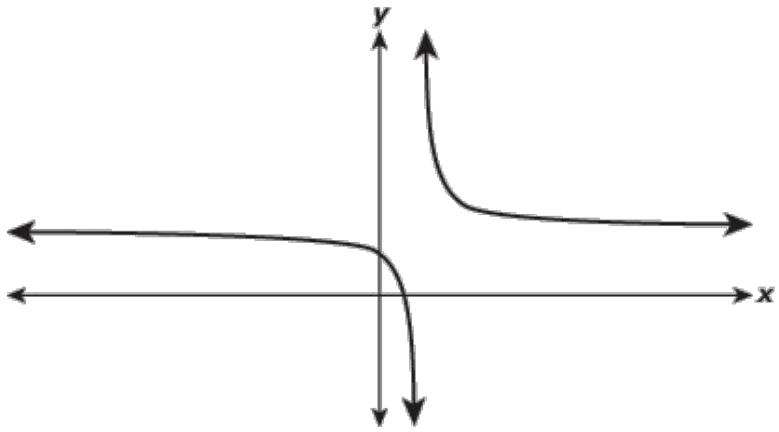


D.

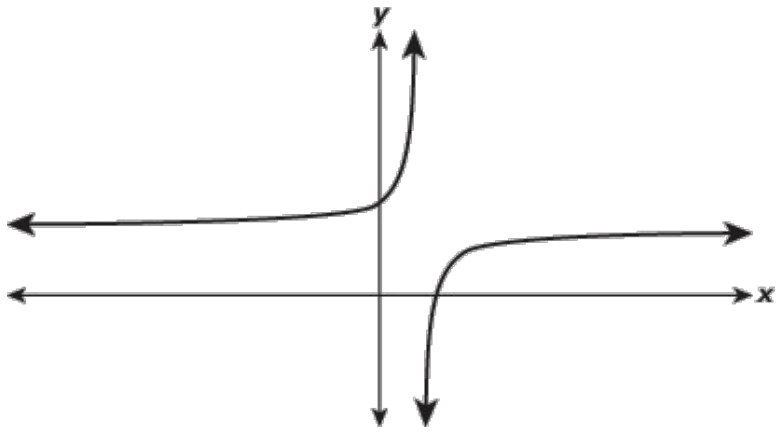


196. Which rational function is decreasing in the interval $(-\infty, 1)$ and is symmetric over the line $x = 1$?

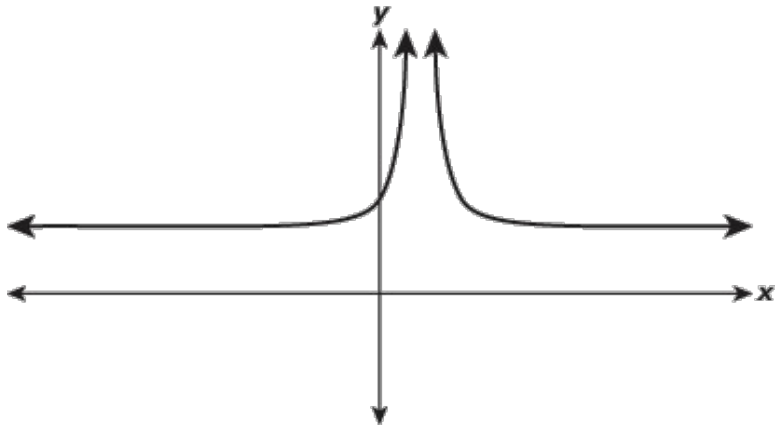
A.



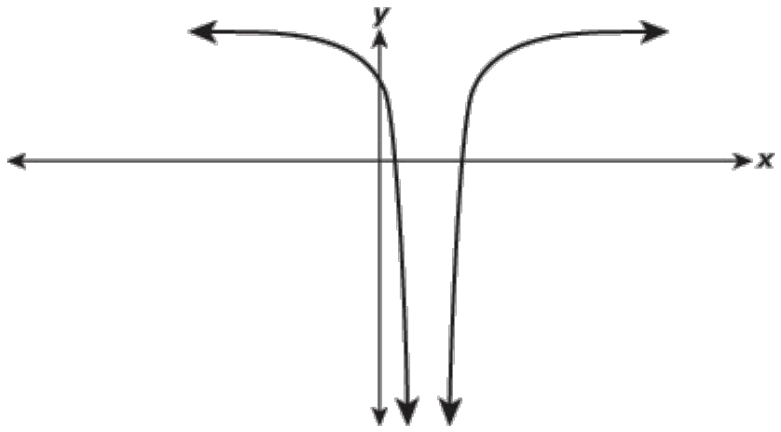
B.



C.



D.



197. The table below shows the value of the function $f(x)$ for various values of x.

x	$f(x)$
–3	5
–2	0
–1	–3
0	–4
1	–3
2	0
3	5

Which statement describes $f(x)$ over the interval of $0 \leq x \leq 3$?

A. The function is positive.

B. The function is negative.

C. The function is increasing.

D. The function is decreasing.

198. **Which ordered pair represents the *y*-intercept of** $x + 3y = 6$?

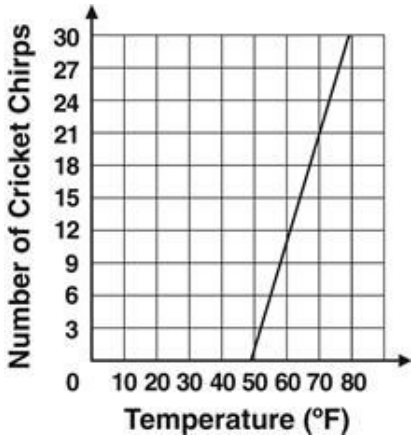
A. (6, 0)
B. (2, 0)
C. (0, 3)
D. (0, 2)

199. **Paula counted the number of cricket chirps she heard in fifteen-second intervals at different times based on the temperature outside and recorded her results in the table.**

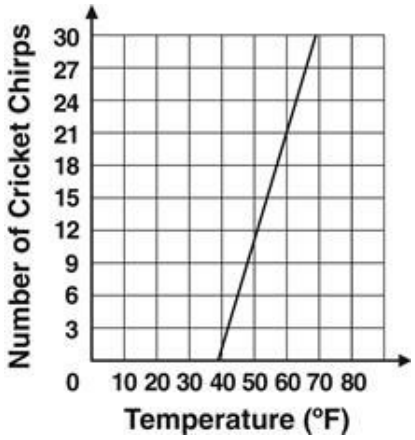
Number of Cricket Chirps	Temperature (°F)
30	69
20	59
13	52

Which graph shows the relationship between the number of cricket chirps and the outside temperature?

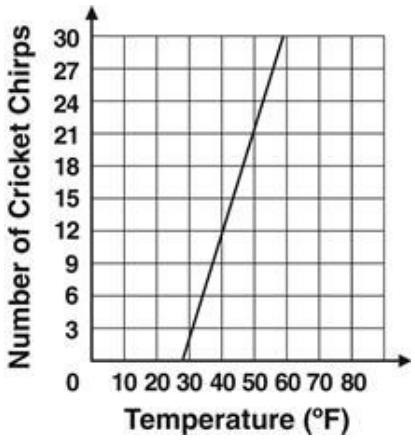
A.



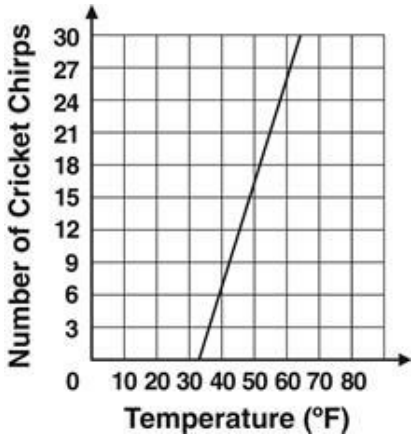
B.



C.



D.



200. **What is the *x*-intercept for the graph of** $2y + 4x = 6$?

A. $(-3,\ 0)$

B. $\left(-\frac{3}{2},\ 0\right)$

C. $\left(\frac{3}{2},\ 0\right)$

D. $(3,\ 0)$

201. **What is the *x*-intercept of the graph of** $2x - y - 5 = 0$?

A. $(0,\ 5)$

B. $(0,\ -5)$

C. $\left(\frac{5}{2}, 0\right)$

D. $\left(-\frac{5}{2}, 0\right)$

202. **What are the *x*- and *y*-intercepts for** $-2x + 3y = -12$?

A. (−6, 0) and (0, 4)

B. (−4, 0) and (0, 6)

C. (4, 0) and (0, −6)

D. (6, 0) and (0, −4)

203. **The graph of which equation below is symmetric with respect to the *y*-axis, the *x*-axis, and the line $y = x$?**

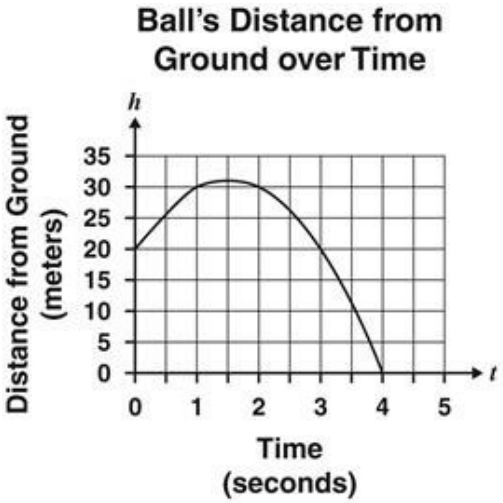
A. $8y = x^5$

B. $y = x^2 + 6$

C. $y^2 = 6 - x$

D. $x^2 + y^2 = 16$

204. **A ball will be thrown upward from a height of 20 meters above the ground, with an initial velocity of 15 meters per second. Its distance from the ground, *d*, is a function of the time in seconds since the ball was thrown, *t*. This function is graphed below.**



How many seconds after the ball is thrown will it be 20 meters from the ground again?

A. 1 second

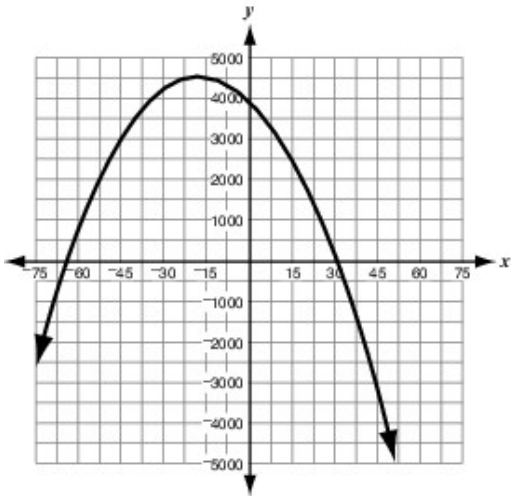
B. 2 seconds

C. 3 seconds

D. 4 seconds

205. A store on a college campus sells an average of 120 college sweatshirts per week. The cost of each sweatshirt is $32. It is observed that for each increase of $0.50 in the price of the sweatshirt, the average sales per week decreases by 4 shirts. Which graph represents the given situation if the *x*-axis represents the number of times the price increases by $0.50 and the *y*-axis represents the weekly revenue, in dollars, from the sweatshirts?

A.


y
x
5000
4000
3000
2000
1000
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−75
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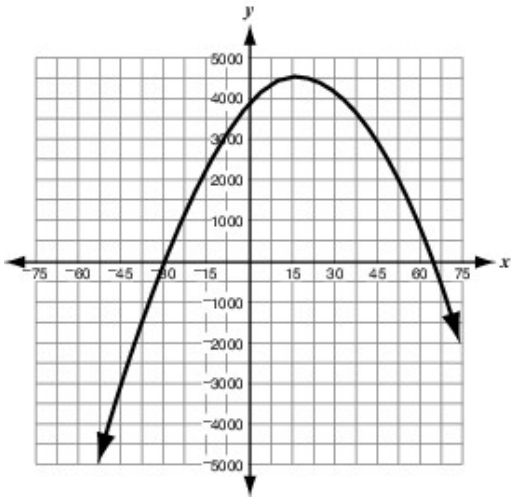
−45
−30
−15
15
30
45
60
75

B.


y
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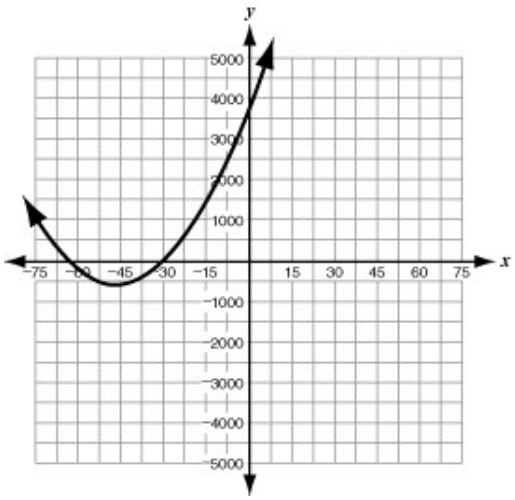
C.


y
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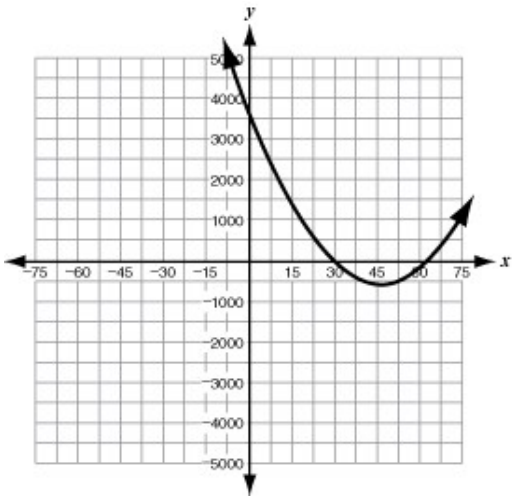
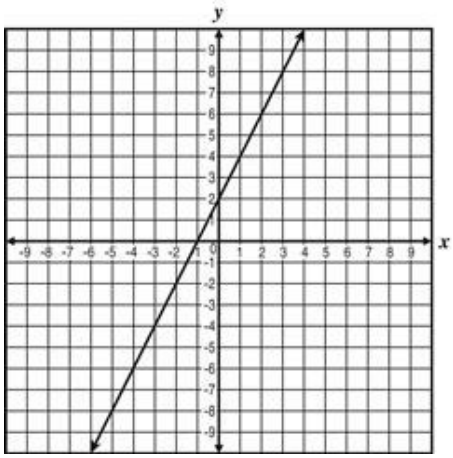
D.



206. **What are the *x*- and *y*-intercepts of the graph defined by the equation $5x + 2y = 25$?**

A. *x*-intercept: (2, 0), *y*-intercept: (0, 5)
B. *x*-intercept: (5, 0), *y*-intercept: (0, 2)
C. *x*-intercept: (5, 0), *y*-intercept: (0, 12.5)
D. *x*-intercept: (12.5, 0), *y*-intercept: (0, 5)

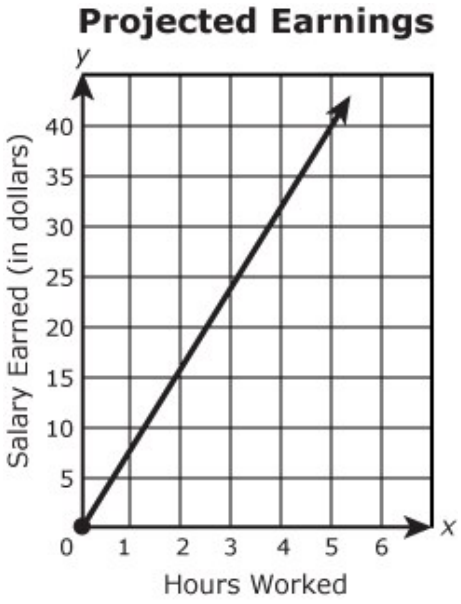
207. **The graph of *y* = 2*x* + 2 is shown.**



What coordinates identify the *y*-intercept of this graph?

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

208. Lee uses the graph of the function $f(x)$ to express his projected earnings at his new job.



Which **best** describes what

$$f(x) = 40$$

means in this problem?

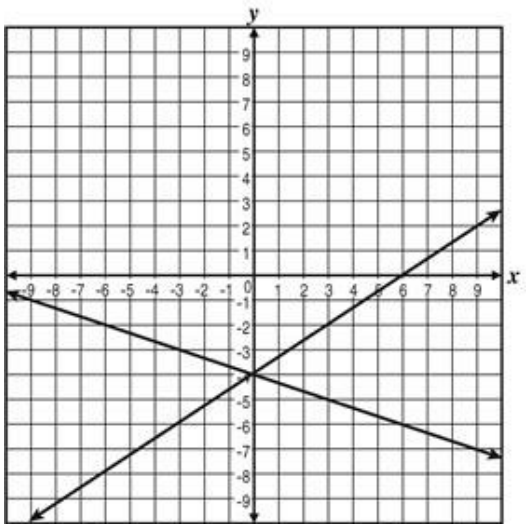
A. the hours Lee will work per week

B. the hourly rate Lee will be paid at his new job

C. the amount of money in dollars Lee will earn for working 5 hours

D. the amount of money in dollars Lee will earn for working 8 hours

209. **What do the two lines in the graph below have in common?**



A. *y*-intercept

B. slope

C. equation of the lines

D. *x*-intercept

210. The height of a rocket, in feet, t seconds after it is launched is modeled by the function $h(t) = -16t^2 + 125t + 24$. Which interval has the largest change in height?

A. 0–1 second

B. 3–4 seconds

C. 5–6 seconds

D. 7–8 seconds

211. **Which generalization about the *y*-intercept for any equation is correct?**

A. The *y*-intercept is located at the origin.

B. The *y*-intercept is the point located on the *x*-axis.

C. The *y*-intercept is the value of *x* when *y* is set equal to 0.

D. The *y*-intercept is the value of the equation when *x* equals 0.

212. **Given the equation $-4x + y = 8$, what are the *x*- and *y*-intercepts of the graph?**

A. *x*-intercept = 8 and *y*-intercept = −2

B. *x*-intercept = 2 and *y*-intercept = −8

C. *x*-intercept = −2 and *y*-intercept = 8

D. *x*-intercept = −8 and *y*-intercept = 2

213. **What are the *x*- and *y*-intercepts for the graph of the equation $y = 6 - 3x$?**

A. *x*-intercept = 6; *y*-intercept = −2

B. *x*-intercept = −2; *y*-intercept = 6

C. *x*-intercept = 2; *y*-intercept = 6

D. *x*-intercept = 6; *y*-intercept = 2

214. **What are the *x*- and *y*-intercepts of the graph of $4y - \frac{1}{2}x = 12$?**

A. $x\text{–intercept} = 24,\ y\text{–intercept} = -3$

B. $x\text{–intercept} = -24,\ y\text{–intercept} = 3$

C. $x\text{–intercept} = 3,\ y\text{–intercept} = -24$

D. $x\text{–intercept} = -3,\ y\text{–intercept} = 24$

215. **What point is the *y*-intercept of the line represented by the equation $8x + 5y = 40$?**

A. $(8, 0)$

B. $(5, 0)$

C. $(0, 8)$

D. $(0, 5)$

216. A skydiver jumps from a height of 3,600 feet above the ground. The table below shows his height at different intervals of time.

CHANGE IN SKYDIVER'S HEIGHT OVER TIME

Time (in seconds)	Height above the ground (in feet)
0	3,600
2	3,536
4	3,344
6	3,024
8	2,576
10	2,000

If the skydiver's height with respect to time can be shown using a quadratic equation, how many seconds does it take the skydiver to reach the ground?

A. 15 seconds

B. 16 seconds

C. 20 seconds

D. 32 seconds

217. **Which of the following points is the *x*-intercept of the graph of** $6x - 3y = 36$?

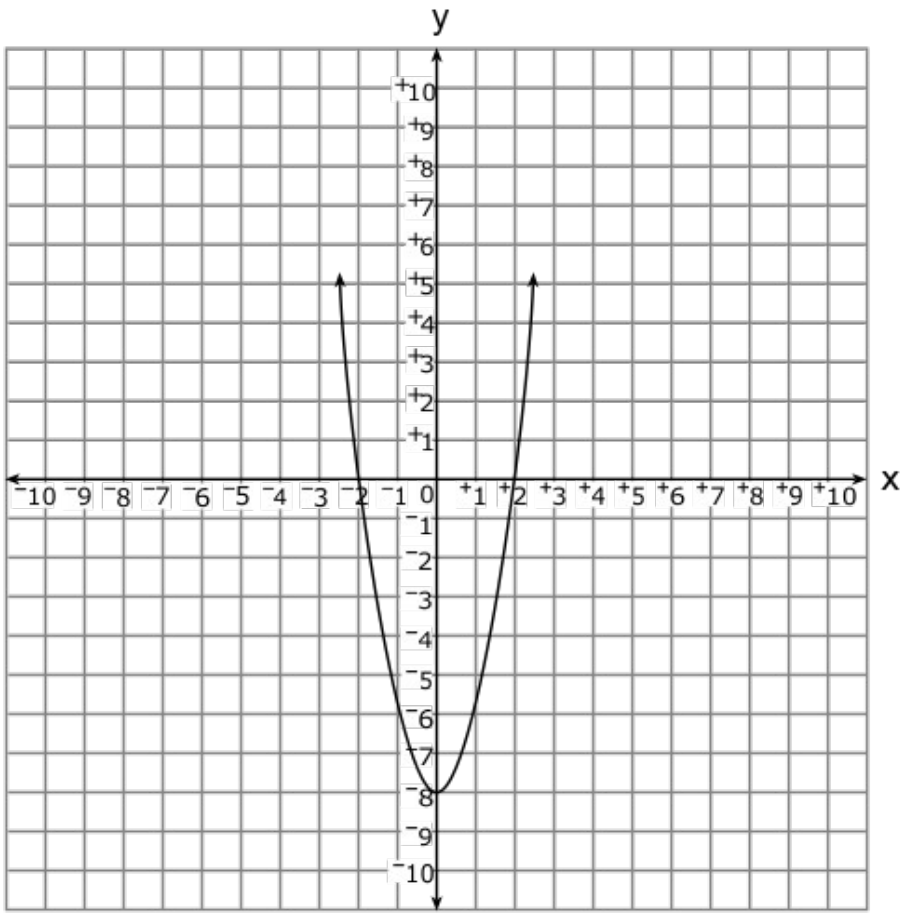
A. $(-12, 0)$

B. $(0, -12)$

C. $(6, 0)$

D. $(0, 6)$

218. A function $f(x)$ is graphed below.



When is $f(x) < 0$?

A. $x < 0$

B. $x < 0$ or $x > 2$

C. $x < -2$ or $x > 2$

D. $-2 < x < 2$

219. The height of a rocket is modeled by $h(t) = -(4t - 12)(4t - 36)$. How long after reaching its maximum height does it take for the rocket to hit the ground?

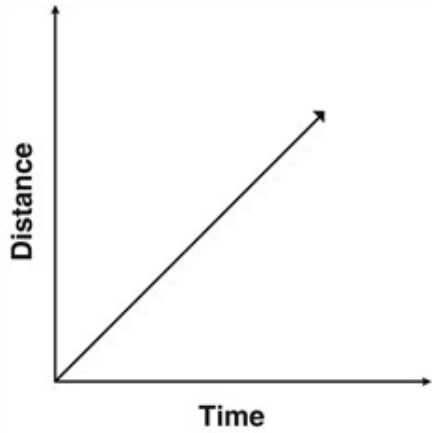
A. 3 seconds

B. 4.5 seconds

C. 7.5 seconds

D. 12 seconds

220. **The qualitative graph below shows a functional relationship.**



Which statement about this relationship is true?

A. There is no dependent quantity.
B. Time is the dependent quantity.
C. Speed is the dependent quantity.
D. Distance is the dependent quantity.

221. **What is the *y*-intercept of the line whose equation is** $5x + 2y = 10$ **?**

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

222. A ball is dropped from the top of a 1,250-foot-tall building. The function $f(x) = -16x^2 + 1{,}250$ models the height, in feet, of the ball x seconds after it was dropped. During which interval is the height of the ball between 500 and 550 feet from where it was dropped?

A. 5.59–5.85 seconds
B. 5.86–6.61 seconds
C. 6.62–6.85 seconds
D. 6.86–8.84 seconds

223. **What point is the *x*-intercept of the line represented by the equation** $6x + 9y = 54$?

A. (0, 6)
B. (0, 9)
C. (6, 0)
D. (9, 0)

224. **What point is the *y*-intercept of the line represented by the equation $6x + 8y = 48$?**

A. $(8, 0)$
B. $(6, 0)$
C. $(0, 8)$
D. $(0, 6)$

225. **Which point is the *x*-intercept of the line represented by the equation $2x + 9y = 18$?**

A. (9, 0)
B. (2, 0)
C. (0, 9)
D. (0, 2)

226. **Given the equation $-5x + 2y = 6$, what are the *x*- and *y*-intercepts of the graph?**

A. *x*-intercept $= -3$ and *y*-intercept $= \frac{6}{5}$
B. *x*-intercept $= -\frac{6}{5}$ and *y*-intercept $= 3$
C. *x*-intercept $= \frac{6}{5}$ and *y*-intercept $= -3$
D. *x*-intercept $= 3$ and *y*-intercept $= -\frac{6}{5}$

227. **Look at the equation below.**

$y = -Ax + 5$

For what value of *A* will the graph of the equation have an *x*-intercept of 3?

A. $-\frac{5}{3}$
B. $\frac{5}{3}$
C. 3
D. 5

228. **Line *l* is represented by the equation $\frac{3}{2}x + \frac{5}{3}y = \frac{1}{6}$. What are the *x*- and *y*-intercepts of line *l*?**

A. *x*-intercept of $\frac{1}{9}$ and *y*-intercept of $\frac{1}{10}$
B. *x*-intercept of $\frac{1}{4}$ and *y*-intercept of $\frac{5}{18}$
C. *x*-intercept of $\frac{2}{3}$ and *y*-intercept of $\frac{3}{5}$
D. *x*-intercept of $\frac{3}{2}$ and *y*-intercept of $\frac{5}{3}$

229. **What are the *x*- and *y*-intercepts of the graph of the equation $7x - 3y + 6 = 0$?**

A. *x*-intercept: $\left(-\frac{6}{7}, 0\right)$, *y*-intercept: $(0, -2)$

B. *x*-intercept: $\left(-\frac{6}{7}, 0\right)$, *y*-intercept: $(0, 2)$

C. *x*-intercept: $\left(\frac{6}{7}, 0\right)$, *y*-intercept: $(0, -2)$

D. *x*-intercept: $\left(\frac{6}{7}, 0\right)$, *y*-intercept: $(0, 2)$

230. An object is launched from 180 feet above the ground. The function that models the height, in feet, of the object after t seconds is given by $f(t) = -16t^2 + 96t + 180$. Which statement is true?

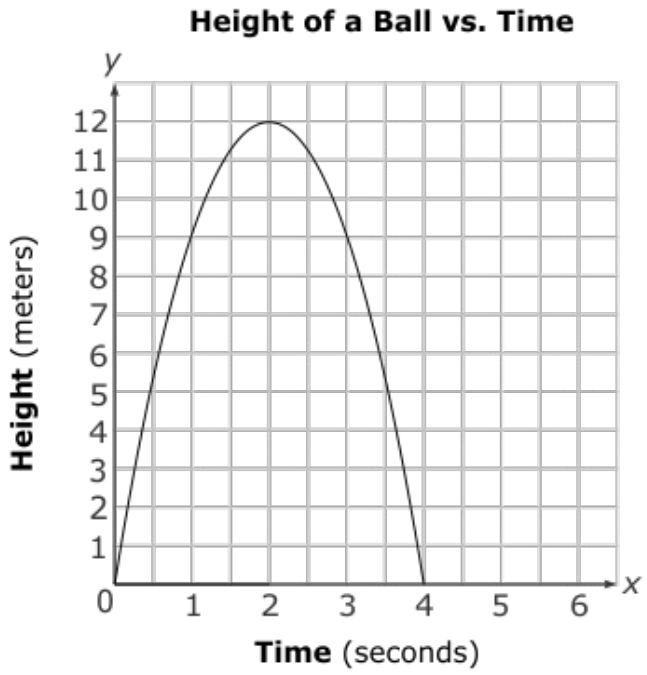
A. The object will obtain a maximum height of 180 feet.

B. The object will obtain a maximum height of 324 feet.

C. The object will obtain a maximum height after 6 seconds.

D. The object will obtain a maximum height after 7.5 seconds.

231. The graph below shows the relationship between the height of a ball (in meters), y, thrown into the air and the time (in seconds), x.



Which statement ***best*** describes the height of the ball?

A. The maximum height is 2 meters.

B. The maximum height is 4 meters.

C. The height is increasing for 2 seconds.

D. The height is increasing for 4 seconds.

232. **Which point is the *x*-intercept of the line represented by the equation** $6x + 5y = 30$?

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

233. **Which of the following functions is represented by a graph that has origin symmetry?**

A. x^{24}
B. x^{25}
C. $x^{24} + 1$
D. $x^{25} + 1$

234. **What are the *x*- and *y*-intercepts of the equation $x - y = 100$?**

A. *x*-intercept : (–100, 0), *y*-intercept : (0, –100)
B. *x*-intercept : (–100, 0), *y*-intercept : (0, 100)
C. *x*-intercept : (100, 0), *y*-intercept : (0, –100)
D. *x*-intercept : (100, 0), *y*-intercept : (0, 100)

235. **Given the equation $-4x + 3y = 24$, what are the *x*- and *y*-intercepts of the graph?**

A. *x*-intercept = 8 and *y*-intercept = −6
B. *x*-intercept = 6 and *y*-intercept = −8
C. *x*-intercept = −6 and *y*-intercept = 8
D. *x*-intercept = −8 and *y*-intercept = 6

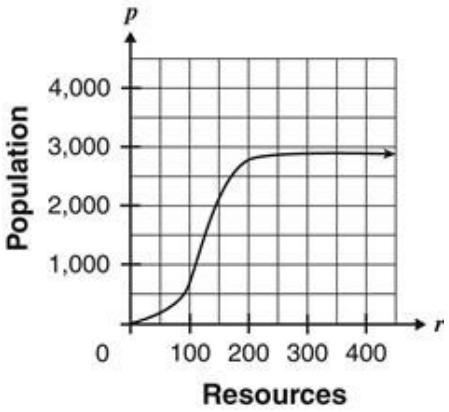
236. **Look at the equation below.**

$y = -Ax + 9$

For which value of *A* will the graph of the equation have an *x*-intercept of $\frac{9}{2}$?

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

237. **The graph below shows how the population of a type of small animal varies based on the number of available resources in its habitat.**

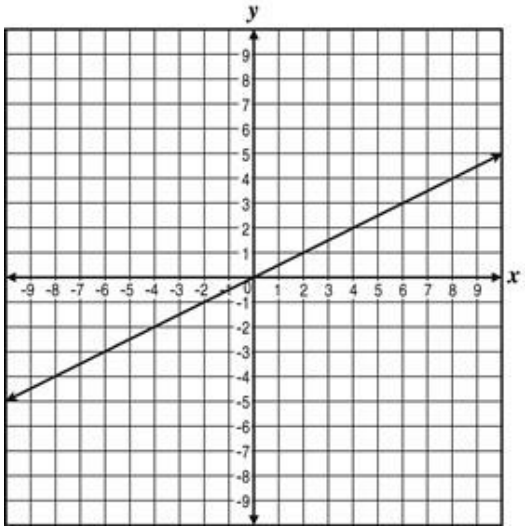


As the number of available resources increases, which is closest to the limit for the population of the small animals?

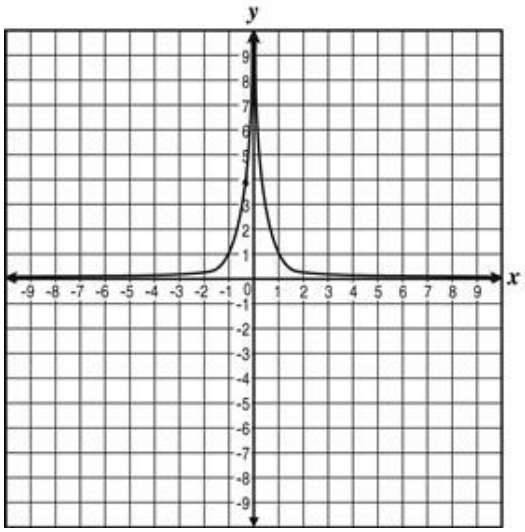
A. 200 animals
B. 400 animals
C. 3,000 animals
D. 4,000 animals

238. **Which of the following represents the function $f(x) = \frac{1}{x^2}$?**

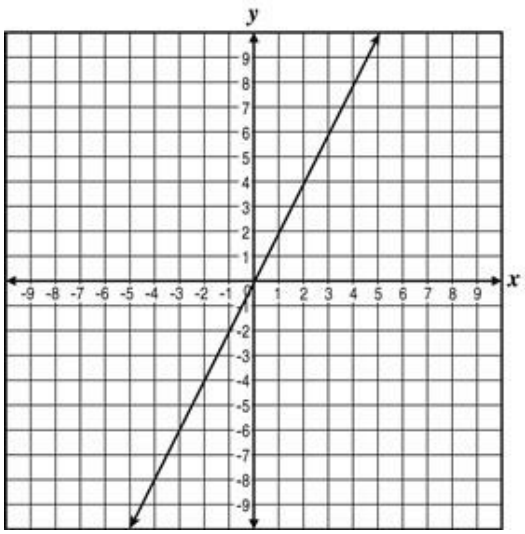
A.



B.



C.



D.