1
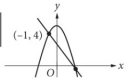
Which expression is equivalent to $\dfrac{12x^3}{8x^2}$, where x is not equal to 0 ?

View Answer ⌄

A. $\dfrac{4}{x}$

B. $\dfrac{3x}{2}$

C. $4x$

D. $20x^5$

Question Difficulty: Easy

2

The graph of a linear equation and the graph of a quadratic equation are shown. What is true about the point $(-1,4)$?

View Answer ⌄

A. The point satisfies only the quadratic equation.

B. The point satisfies only the linear equation.

C. The point satisfies both equations.

D. The point satisfies neither equation.

Question Difficulty: Easy

3

A ball is thrown upward from a height of 3 feet above the ground. Assuming no air resistance, the function h defined by $h(t) = -16t^2 + 36t + 3$ models the ball's height $h(t)$, in feet, above the ground t seconds after it is thrown. Based on the model, what is the meaning of $h(2) = 11$ in this context?

View Answer ⌄

A. The ball hits the ground 2 seconds after it is thrown.

B. The ball hits the ground 11 seconds after it is thrown.

C. The ball is 11 feet above the ground 2 seconds after it is thrown.

D. The ball is 2 feet above the ground 11 seconds after it is thrown.

Question Difficulty: Medium

4 Which expression is equivalent to $(4x^5+5x^4)-(2x^5+3x^4)$?

View Answer ∨

A. $2x^5-2x^4$

B. $2x^5+2x^4$

C. $6x^5-8x^4$

D. $6x^5+8x^4$

Question Difficulty: Medium

5 At sea level, the boiling point of water is 212 degrees Fahrenheit (°F). For every 500-foot increase in elevation above sea level, the boiling point of water decreases by about 1°F. Which equation models water's boiling point y, in °F, in terms of x, the elevation, in feet above sea level?

View Answer ∨

A. $y=-\dfrac{1}{500}x+212$

B. $y=-500x+212$

C. $y=\dfrac{1}{500}x-212$

D. $y=500x-212$

Question Difficulty: Medium

6
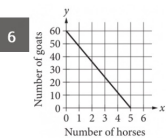
The line shown models the possible combinations of the number of goats and horses a certain 10-acre farm can sustain, based on the number of acres of land each animal needs. Based on this model, how many acres of land on the farm does each horse need?

View Answer ∨

A. 2

B. 5

C. 6

D. 12

Question Difficulty: Medium

7 $y < x - 4$

Which of the following ordered pairs (x,y) satisfies the inequality above?

View Answer ⌄

A. $(0,3)$

B. $(3,0)$

C. $(0,6)$

D. $(6,0)$

Question Difficulty: Medium

8 In right triangle PQR, the length of side $\overline{PQ}$ is 70, the measure of angle P is $90°$, and the measure of angle R is $38°$. Which of the following represents the length of side $\overline{QR}$?

View Answer ⌄

A. $\dfrac{70}{\sin 52°}$

B. $\dfrac{70}{\sin 38°}$

C. $70\sin 52°$

D. $70\sin 38°$

Question Difficulty: Medium

9 Some values of x and the corresponding values of $f(x)$ are given in the table shown.

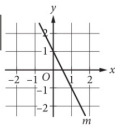| x	$f(x)$
2	1
5	1.5
8	2
11	2.5

If there is a linear relationship between x and $f(x)$, which of the following equations gives this relationship?

View Answer ⌄

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

B. $f(x) = \dfrac{1}{2}x - \dfrac{1}{2}$

C. $f(x) = \dfrac{1}{6}x + \dfrac{5}{6}$

D. $f(x) = \dfrac{1}{6}x + \dfrac{2}{3}$

Question Difficulty: Medium

10

Line m is shown in the xy-plane. Line p (not shown) is perpendicular to line m. Which of the following could be the equation of line p ?

View Answer ∨

A. $y = \dfrac{1}{2}x + 7$

B. $y = 2x + 7$

C. $y = -\dfrac{1}{2}x + 7$

D. $y = -2x + 7$

Question Difficulty: Medium

11 What is the y-intercept of the graph of $y = (x-4)^2 + 3$ in the xy-plane?

View Answer ∨

A. $(0, -13)$

B. $(0,0)$

C. $(0,3)$

D. $(0,19)$

Question Difficulty: Hard

$f(x) = x^2 + 4x + 4$

12

For the given function f, what is the minimum value of $f(x)$?

View Answer ∨

A. 4

B. 2

C. 1

D. 0

Question Difficulty: Hard

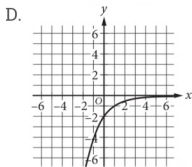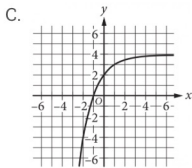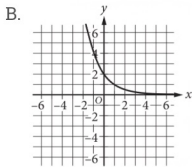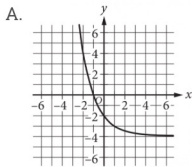**13** Which linear equation has exactly one solution?

A. $y = 5 - y$

B. $y = y - 5$

C. $y = y + 5$

D. $y + 5 = 5 + y$

Question Difficulty: Medium

14 What is the graph of $y = 4 - 2(0.5)^x$?

A.

B.

C.

D.

Question Difficulty: Medium

$x^2 - 6x + y^2 - 8y = 0$

15

The graph of the given equation in the xy-plane is a circle. What is the radius of the circle?

A. 2

B. 3

C. 4

D. 5

Question Difficulty: Hard

16 $|x+1|=5$

What positive value of x satisfies the given equation?

Question Difficulty: Easy

17 In the triangle *RST*, angle *T* measures 40 degrees and angle *R* measures 20 degrees. What is the measure, in degrees, of angle *S*?

Question Difficulty: Easy

18 $\dfrac{3x}{2}+4=13$

What value of x satisfies the given equation?

Question Difficulty: Easy

19 $\sqrt{14-2x}=x-7$

What value of x satisfies the equation shown?

Question Difficulty: Medium

20 $2x+7y=4$
$8x+4y=12$

If (x,y) satisfies the given system of equations, what is the value of y ?

Question Difficulty: Hard