Drill 2

Answers can be found in Part IV.

3

In his physics class, Yigit determined that the height in feet (h) of a projectile t seconds after being launched can be expressed using the function $h(t) = -5t^2 + 20t + 45$. Which of the following values of t would be most helpful in finding the initial height of the projectile?

A) $t = 0$

B) $t = 1$

C) $t = 2$

D) $t = 3$

4

If $12 - (t + 2)^2 = 3$, which of the following could be the value of t?

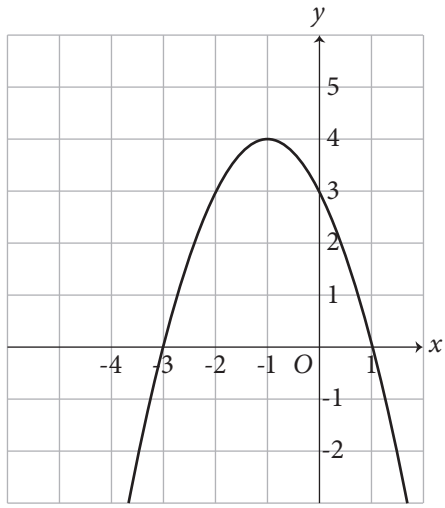
A) -9

B) -5

C) 5

D) 7

6



Which of the following equations is shown in the graph above?

A) $y = -(x - 3)(x + 1)$

B) $y = -(x + 3)(x - 1)$

C) $y = -(x + 3)(x + 4)$

D) $y = -(x - 1)(x + 4)$

9

Aubri determines that her score in a particular video game can be calculated using the formula $x^4 - y^4$, where x represents the number of treasures she discovers, and y represents the number of hidden traps she falls into. Which of the following expressions would be a suitable equivalent for Aubri's score calculation formula?

A) $(x + y)(x - y)(x^2 + y^2)$

B) $(x + y)^2(x^2 + y^2)$

C) $(x - y)^2(x^2 + y^2)$

D) $(x + y)(x - y)(x^2 - y^2)$

10

Which of the following equations has a vertex of (–5, 2) ?

A) $y = (x + 5)^2 - 2$

B) $y = (x - 5)^2 - 2$

C) $y = 2(x + 5)^2 + 2$

D) $y = 2(x - 5)^2 + 2$

14

The profit that a donut shop makes can be expressed by the equation $P = -4(x - 3)^2 + 2{,}000$, where x is the price per donut sold (in dollars). What price, in dollars, should the donut shop charge its customers in order to maximize its profit?

	/	/	
.	.	.	.
	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

23

In the equation $x^2 + 24x + c = (x + 9)(x + p)$, c and p are constants. If the equation is true for all values of x, what is the value of c ?

A) 33

B) 135

C) 144

D) 216

26

The stream of water that shoots out of a public fountain in Central Park takes the form of a parabola. The water shoots from a spout that is 8 feet above the ground and reaches a maximum height of 39.25 feet. If y represents the height of the water and x represents the time (in seconds), which of the following equations could describe the trajectory of the stream of water?

A) $y = -x^2 + 15$

B) $y = -5x^2 + 25x + 8$

C) $y = 2x^2 + 32x + 8$

D) $y = 8x + 39.25$