

## Exercise Set 2 (No Calculator)

1

If  $(x - 2)(x + 2) = 0$ , then  $x^2 + 10 =$

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2

If  $(a - 3)(a + k) = a^2 + 3a - 18$  for all values of  $a$ , what is the value of  $k$ ?

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3

When the quadratic function  $y = 10(x + 4)(x + 6)$  is graphed in the  $xy$ -plane, the result is a parabola with vertex at  $(a, b)$ . What is the value of  $ab$ ?

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4

If the function  $y = 3x^2 - kx - 12$  has a zero at  $x = 3$ , what is the value of  $k$ ?

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5

If the graph of a quadratic function in the  $xy$ -plane is a parabola that intersects the  $x$ -axis at  $x = -1.2$  and  $x = 4.8$ , what is the  $x$ -coordinate of its vertex?

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6

If the graph of  $y = a(x - b)(x - 4)$  has a vertex at  $(5, -3)$ , what is the value of  $ab$ ?

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7

What is the sum of the zeros of the function  $h(x) = 2x^2 - 5x - 12$ ?

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8

If  $x = -5$  is one of the solutions of the equation  $0 = x^2 - ax - 12$ , what is the other solution?

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9

Which of the following is equivalent to  $2a(a - 5) + 3a^2(a + 1)$  for all values of  $a$ ?

- A)  $6a^4 - 24a^3 - 6$
- B)  $5a^5 + 3a^2 - 10a$
- C)  $3a^3 + 5a^2 - 10a$
- D)  $3a^3 + 2a^2 - 10a - 6$

10

Which of the following functions, when graphed in the  $xy$ -plane, has exactly one negative  $x$ -intercept and one negative  $y$ -intercept?

- A)  $y = -x^2 - 6x - 9$
- B)  $y = -x^2 + 6x - 9$
- C)  $y = x^2 + 6x + 9$
- D)  $y = x^2 - 6x + 9$

11

If  $2x^2 + 8x = 42$  and  $x < 0$ , what is the value of  $x^2$ ?

- A) 4
- B) 9
- C) 49
- D) 64

12

When the function  $y = h(x) = ax^2 + bx + c$  is graphed in the  $xy$ -plane, the result is a parabola with vertex at  $(4, 7)$ . If  $h(2) = 0$ , which of the following must also equal 0?

- A)  $h(5)$
- B)  $h(6)$
- C)  $h(8)$
- D)  $h(9)$