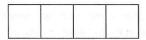
Exercise Set 3 (No Calculator)

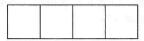
1

If $x^3 - 7x^2 + 16x - 12 = (x - a)(x - b)(x - c)$ for all values of x, what is the value of abc?



2

If $x^3 - 7x^2 + 16x - 12 = (x - a)(x - b)(x - c)$ for all values of x, what is the value of a + b + c?



3

1. If $x^3 - 7x^2 + 16x - 12 = (x - a)(x - b)(x - c)$ for all values of x, what is the value of ab + bc + ac?



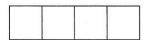
4

If $x^2 - ax + 12$ has a zero at x = 3, what is the value of a?



5

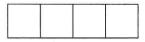
If $x^2 - ax + 12$ has a zero at x = 3, at what other value of x does it have a zero?



6

$$y = 4x^2 + 2$$
$$x + y = 16$$

When the two equations in the system above are graphed in the xy-plane, they intersect in the point (a, b). If a > 0, what is the value of a?



7

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

Which of the following equations, if graphed in the *xy*-plane, would intersect the graph of the equation above in exactly one point?

- A) y = -4
- B) y = -3
- C) y = -1
- E) y=0

8

If g(x) = a(x + 1)(x - 2)(x - 3) where a is a negative constant, which of the following is greatest?

- A) g(0.5)
- B) g(1.5)
- C) g(2.5)
- D) g(3.5)

9

If $2x^2 + ax + b$ has zeros at x = 5 and x = -1, what is the value of a + b?

- A) -18
- B) -9
- C) -2
- D) -1

10

If the graph of the equation $y = ax^4 + bx$ in the xy-plane passes through the points (2, 12) and (-2, 4), what is the value of a + b?

- A) 0.5
- B) 1.5
- C) 2.0

D) 2.5

11

If the function $y = 3(x^2 + 1)(x^3 - 1)(x + 2)$ is graphed in the *xy*-plane, in how many distinct points will it intersect the *x*-axis?

- A) Two
- B) Three
- C) Four

D) Five