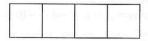
Exercise Set 3 (Calculator)

12

If $x^2 + y = 10x$ and y = 25, what is the value of x?



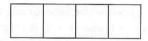
13

If $2x^3 - 5x - a$ has a zero at x = 4, what is the value of a?



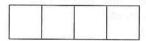
14

If x > 0 and $x^4 - 9x^3 - 22x^2 = 0$, what is the value of x?



15.

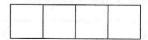
If d is a positive constant and the graph in the xy-plane of $y = (x^2)(x^2 + x - 72)(x - d)$ has only one positive zero, what is the value of d?



16

$$y = 2x^2 + 18$$
$$y = ax$$

In the system above, *a* is a positive constant. When the two equations are graphed in the *xy*-plane, they intersect in exactly one point. What is the value of *a*?



17

$$4a^2 - 5b = 16$$

$$3a^2 - 5b = 7$$

Given the system of equations above, what is the value of a^2b^2 ?



18

For how many distinct positive integer values of n is (n-1)(n-9)(n-17) less than 0?

- A) Six
- B) Seven
- C) Eight
- D) Nine

19

$$x^2 + 2y^2 = 44$$
$$y^2 = x - 2$$

When the two equations above are graphed in the xy-plane, they intersect in the point (h, k). What is the value of h?

- A) -8
- B) -6
- C) 6
- D) 8

20

$$m^2 + 2n = 10$$

$$2m^2 + 2n = 14$$

Given the system of equations above, which of the following could be the value of m + n?

- A) -7
- B) -2
- C) 1
- D) :

21

For how many distinct values of x does $(x^2 - 4)(x - 4)^2(x^2 + 4)$ equal 0?

- A) Three
- B) Four
- C) Five
- D) Six

22

The function f(x) is defined by the equation f(x) = a(x + 2)(x - a)(x - 8) where a is a constant. If f(2.5) is negative, which of the following could be the value of a?

- A) -2
- B) 0
- C) 2
- D) 4