

Exercise Set 3 (Calculator)

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

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

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

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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 ?

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

$$y = ax$$

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 ?

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

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

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

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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

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

$$y^2 = x - 2$$

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

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

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

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

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

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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

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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