Graphing Quadratics Review Name: Key Block: ___

1. $f(x) = (x-3)(x+1)$

Identify the zeros/roots: 3 and -1

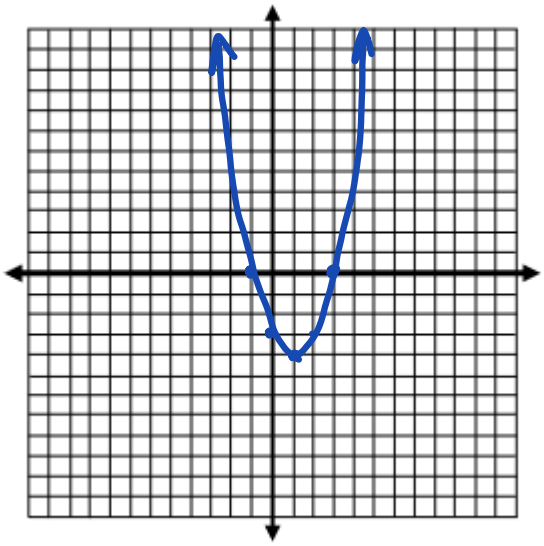
Does it have a minimum or maximum? ____

Axis of symmetry: $x=1$

Vertex: $(1,-4)$

y-intercept: $(0,-3)$

Domain: $(-\infty,\infty)$ Range: $[-4,\infty)$



2. $f(x) = x^2 - 4x - 5$ $(x+1)(x-5)$

Identify the zeros/roots: -1 and 5

Does it have a minimum or maximum? ____

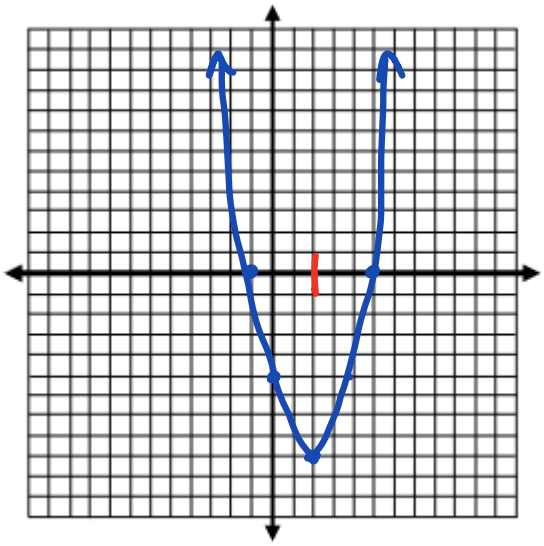
Axis of symmetry: $x=2$

Vertex: $(2,-9)$

y-intercept: $(0,-5)$

Domain: $(-\infty,\infty)$ Range: $(-9,\infty)$

plug zero into x



3. $f(x) = (x-2)^2 - 4$

Identify the zeros/roots: 4 and 0

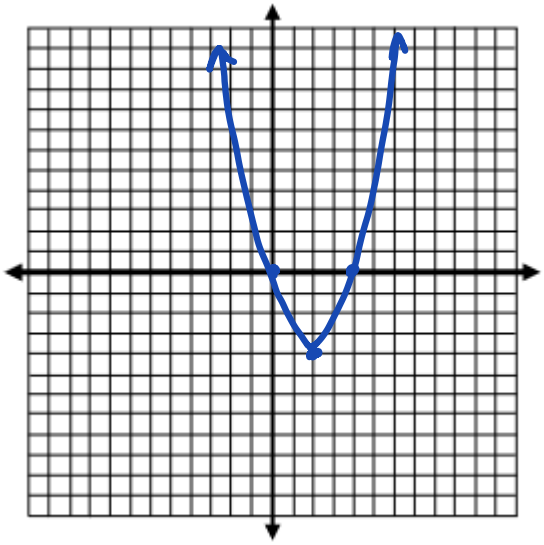
Does it have a minimum or maximum? ____

Axis of symmetry: $x=2$

Vertex: $(2,-4)$

y-intercept: $(0,0)$

Domain: $(-\infty,\infty)$ Range: $(-4,\infty)$



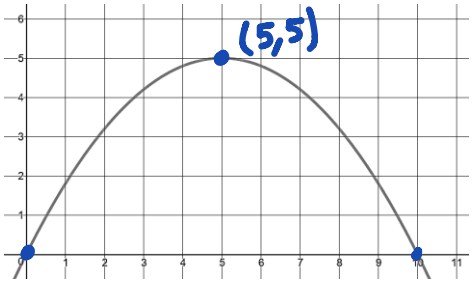
4. A bottlenose dolphin jumps out of the water. The path the dolphin travels can be modeled by $h = -0.2d^2 + 2d$, where h represents the height of the dolphin and d represents horizontal distance.

a. What is the maximum height the dolphin reaches?

5 feet

b. How far did the dolphin jump?

10 feet



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5. $f(x) = (x + 2)(x - 4)$

Identify the zeros/roots: -2 and 4

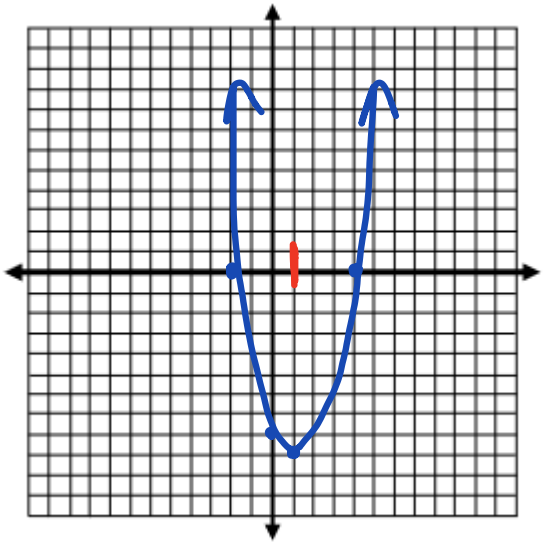
Does it have a minimum or maximum? ____

Axis of symmetry: x=1

Vertex: (1,-9)

y-intercept: (0,-8)

Domain: (-∞,∞) Range: (-9,∞)



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6. $f(x) = (x + 7)(x + 1)$

Identify the zeros/roots: -7 and -1

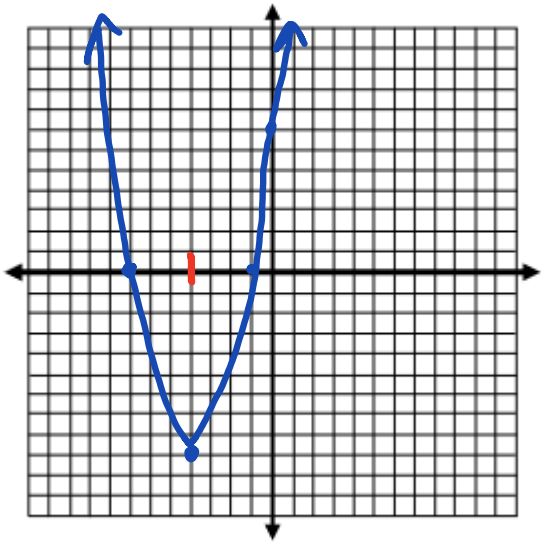
Does it have a minimum or maximum? ____

Axis of symmetry: x=-4

Vertex: (-4,-9)

y-intercept: (0,7)

Domain: (-∞,∞) Range: (-9,∞)



7. $f(x) = x^2 - 6x + 5$ $(x-1)(x-5)$

Identify the zeros/roots: 1 and 5

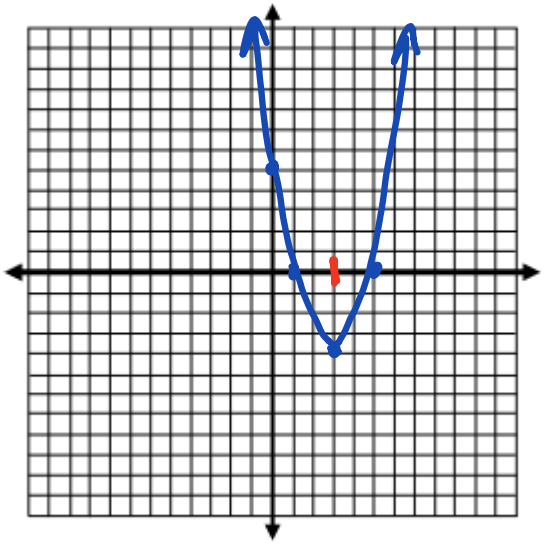
Does it have a minimum or maximum? ____

Axis of symmetry: $x=3$

Vertex: $(3,-4)$

y-intercept: $(0,5)$

Domain: $(-\infty,\infty)$ Range: $[-4,\infty)$



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8. $f(x) = -x^2 + 9$ $-(x+3)(x-3)$

Identify the zeros/roots: 3 and -3

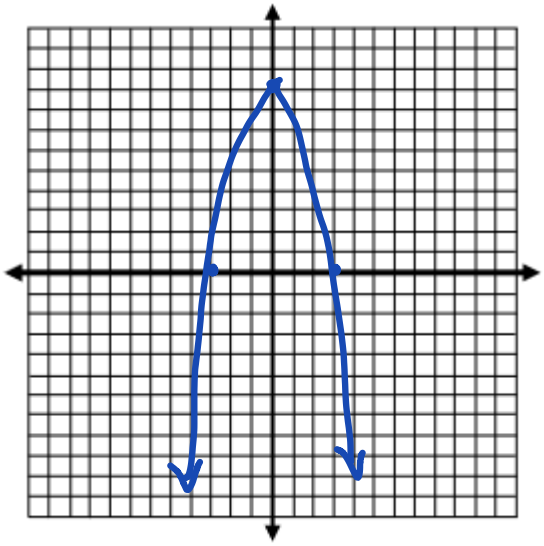
Does it have a minimum or maximum? ____

Axis of symmetry: $x=0$

Vertex: $(0,9)$

y-intercept: $(0,9)$

Domain: $(-\infty,\infty)$ Range: $(-\infty,9]$



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9. $f(x) = (x-6)^2 - 9$

Identify the zeros/roots: 9 and 3

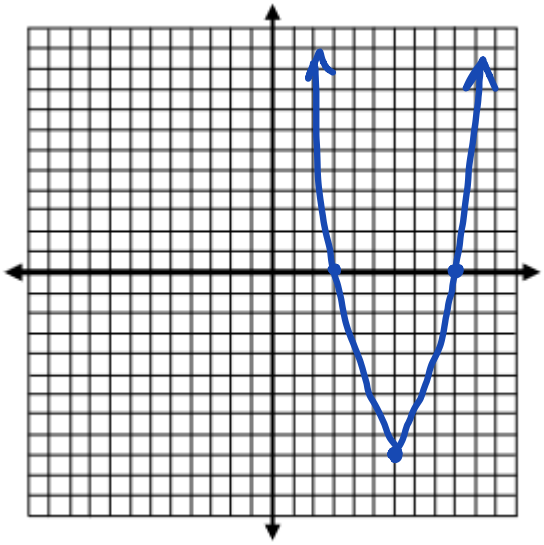
Does it have a minimum or maximum? ____

Axis of symmetry: $x=6$

Vertex: $(6,-9)$

y-intercept: $(0,27)$

Domain: $(-\infty,\infty)$ Range: $[-9,\infty)$



10. $f(x) = -(x+3)^2 + 1$

Identify the zeros/roots: -4 and -2

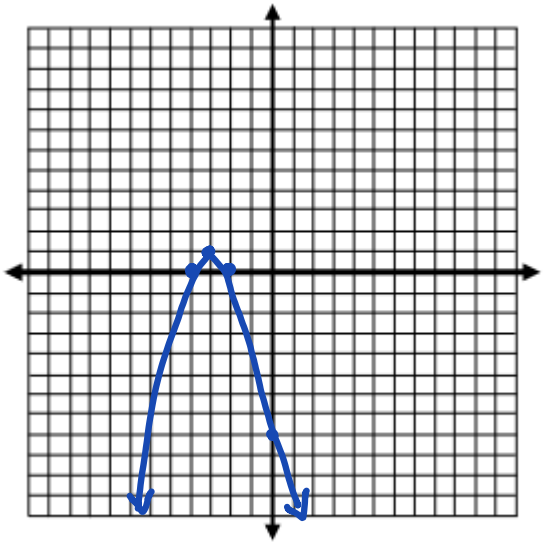
Does it have a minimum or maximum? ____

Axis of symmetry: X=-3

Vertex: (-3,1)

y-intercept: (0,-8)

Domain: (-∞,∞) Range: (-∞,1]



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11. Daisy tosses a coin off a bridge into a stream below. The distance (in feet) the coin is above the water is modeled by the equation $f(x) = -\frac{1}{5}x(x-13)$. Where x represents time in seconds.

a. What is the greatest height of the coin?

8.45 feet

b. How much time will it take for the coin to hit the water?

13 seconds

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12. When a gray kangaroo jumps, its path through the air can be modeled by $f(x) = -3x^2 + 6x$ where x is the kangaroo's horizontal distance traveled (in feet) and y is its corresponding height (in feet).

a. How high can a gray kangaroo jump?

3 feet

b. How far can it jump?

2 feet

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13. The height (in feet) of an object shot from a cannon can be modeled by $h(t) = -(t-4)^2 + 16$, where t is the time (in seconds) after the cannon is fired.

a. What is the maximum altitude that the object reaches?

16 feet

b. How much time does it take for the object to reach the ground?

8 seconds