Graphing Quadratics Review Worksheet
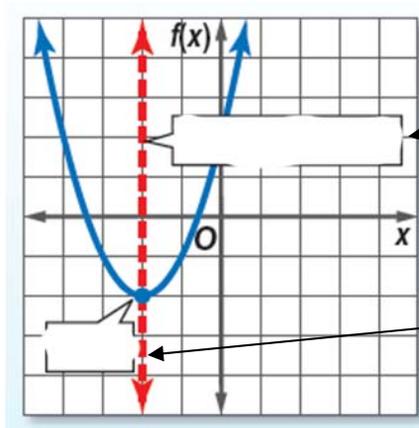
Name _____

Fill in each blank using the word bank.

vertex	minimum	axis of symmetry	x-intercepts
parabola	maximum	zeros/roots	$ax^2 + bx + c$

1. Standard form of a quadratic function is y = _____

2. The shape of a quadratic equation is called a _____

3. _____

4. _____

5. When the vertex is the highest point on the graph, we call that a _____.

6. When the vertex is the lowest point on the graph, we call that a _____.
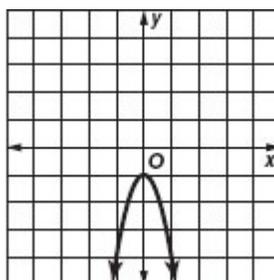
7. Our solutions are the _____.

8. Solutions to quadratic equations are called _____.

Determine whether the quadratic functions have two real roots, one real root, or no real roots. If possible, list the zeros of the function.
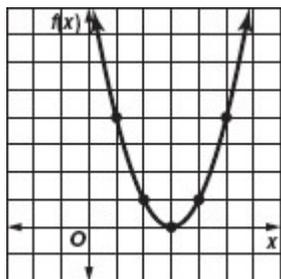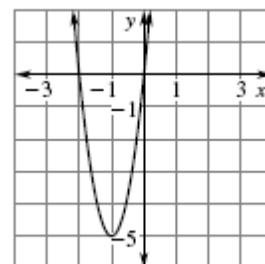

9. Number of roots: _____

Zero(s): _____

10. Number of roots: _____

Zero(s): _____

11. Number of roots: _____

Zero(s): _____

12. Given the graph, identify the following.

Axis of symmetry: _____

Vertex: _____

How many zeros: _____ which are: _____

Domain: _____

Range: _____

Graph the following quadratic functions by using critical values and/or factoring.

You need three points to graph and don't necessarily need all the information listed.

Remember: **Option 1:**   **If it factors, find the zeros.**

The middle of the two factors is the axis of symmetry.

Option 2:   **If it doesn't factor, find the axis of symmetry with** $x = \dfrac{-b}{2a}$

Plug the x-value into the original equation to find the y-value of the

vertex.   The y-intercept is at (0, c)

13. $y = x^2 - 2x - 3$ factor or critical values?
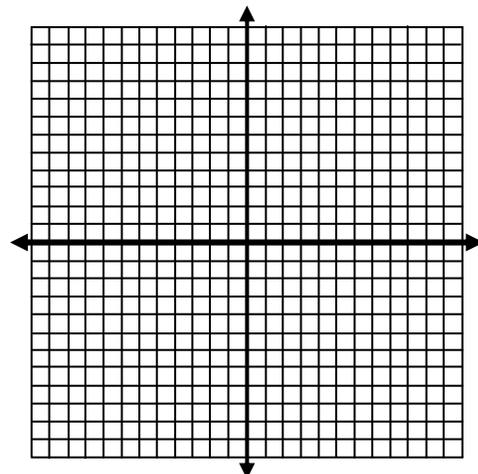

Identify the zeros/roots: _____ and _____

Does it have a minimum or maximum? _____

Axis of symmetry: _____ Vertex: _____

y-intercept: _____

Domain: _____   Range: _____

Graph at least 5 points

14. $y = -x^2 - 4x + 5$ factor or critical values?

Identify the zeros/roots: _____ and _____

Does it have a minimum or maximum? _____

Axis of symmetry: _____ Vertex: _____

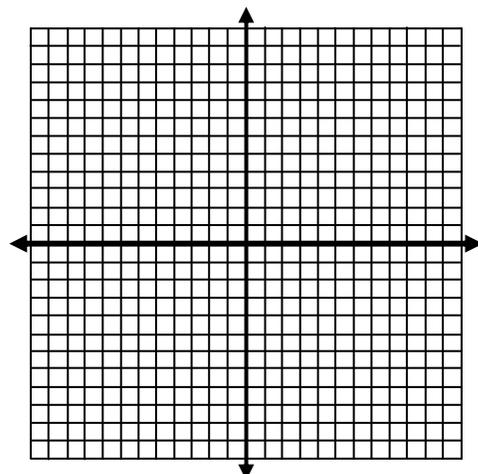y-intercept: _____   Graph at least 5 points

Domain: _____   Range: _____

15. $y = x^2 + 4x + 7$ factor or critical values?

Axis of symmetry: _____ Vertex: _____

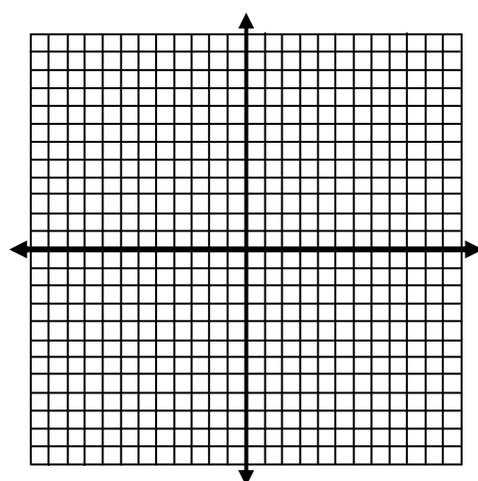Max or Min? _____

y-intercept: _____ Graph at least 3 points

16. $y = -x^2 - 2x + 2$ factor or critical values?

Axis of symmetry: _____ Vertex: _____

Max or Min? _____

y-intercept: _____   Graph at least 5 points

17. 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?

b. How far did the dolphin jump?

9.1 Review Answers

1. $ax^2 + bx + c$

2. parabola

3. axis of symmetry

4. vertex

5. maximum

6. minimum

7. x-intercepts

8. zeros or roots

9. 1; 3

10. 0; none

11. 2; -2 and 0

12. $x = 3$; (3, -2)

    2; 2 and 4

    all reals; $y \geq -2$

13. factor

    -1 and 3

    minimum

    $x = 1$; (1, -4)
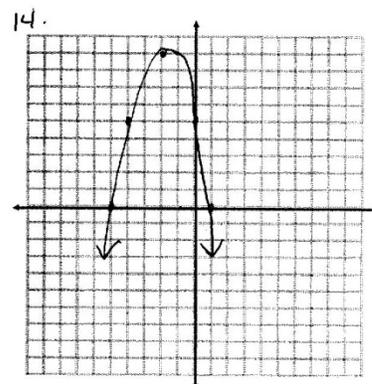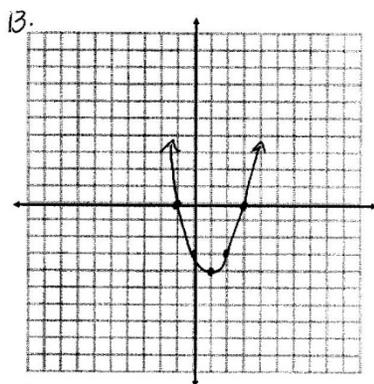
    (0, -3)

    all reals; $y \geq -4$

14. factor

    -5 and 1

    maximum

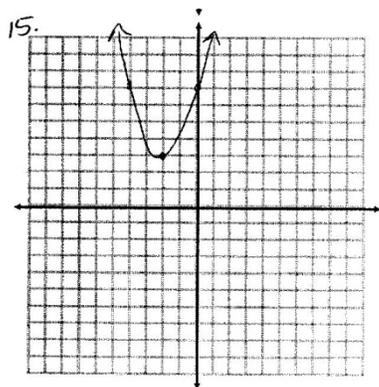 $x = -2$; (-2, 9)

    (0, 5)

    all reals; $y \leq 9$

15. critical values
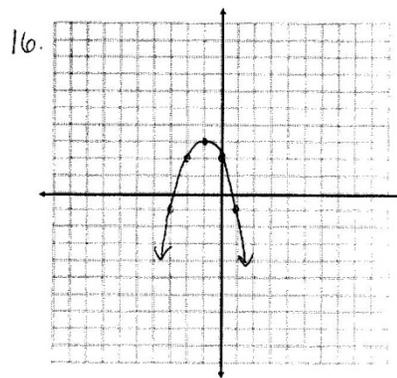
$x = -2$; (-2, 3)

minimum

(0, 7)

16. critical values

$x = -1$; (-1, 3)

maximum

(0, 2)

17. a. 5 feet   b. 10 feet