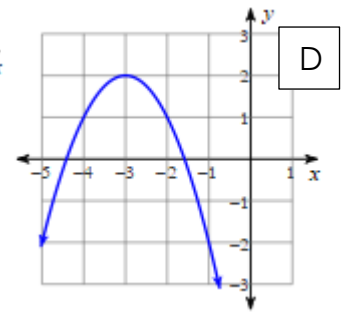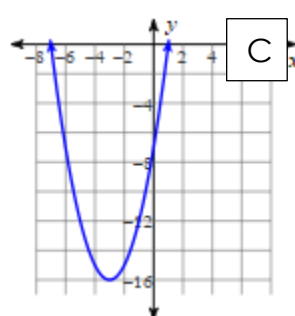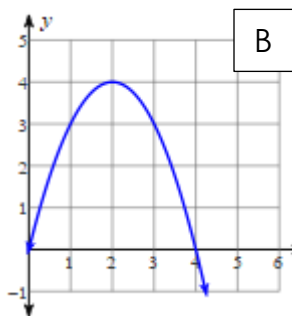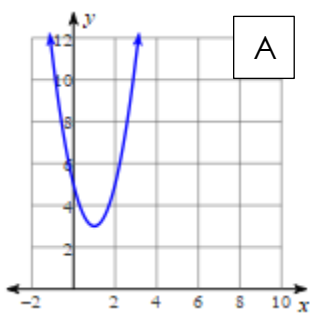Name:_____ Date:_____

Unit 3 Review! Graphing Quadratics

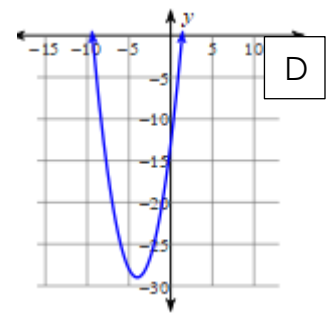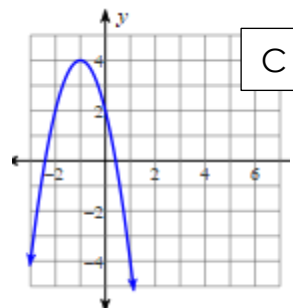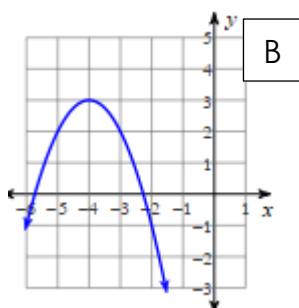**A) For each of the following determine the vertex and axis of symmetry.**
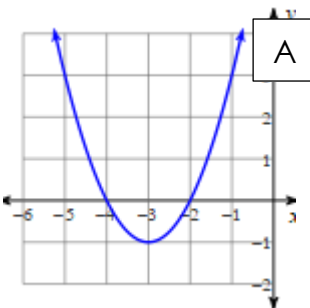
1) $f(x) = (x - 3)^2 - 4$	2) $f(x) = -2(x + 2)^2 - 1$
3) $y = 2x^2 - 4x + 5$	4) $y = -x^2 - 8x + 13$

B) Determine which of the following graphs best represent the equation given

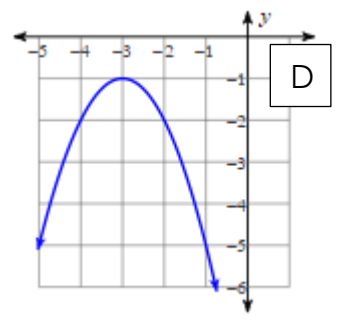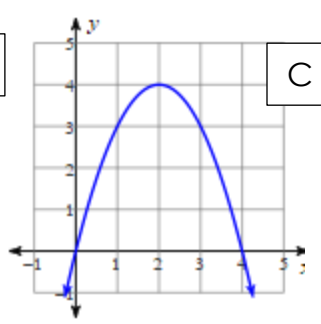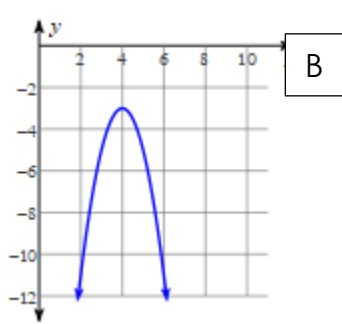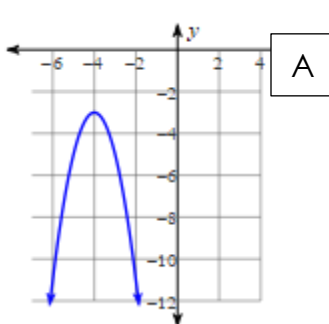5) $y = 2x^2 - 4x + 5$

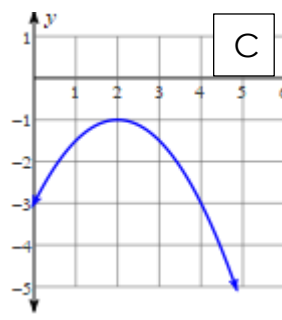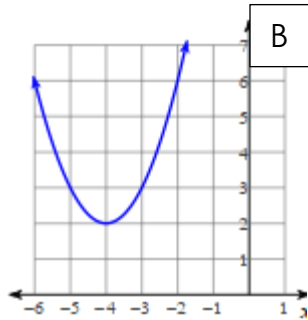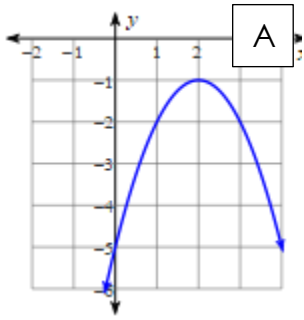
A B C D

6) $y = -x^2 - 8x - 13$

A B C D

7) $y = -(x + 3)^2 - 1$

A B C D

8) $y = -\frac{1}{2}(x - 2)^2 - 1$

A

B

C

D
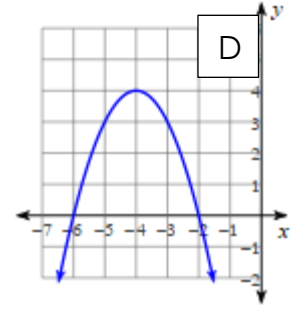
C) Decoding word problems (matching) Given the bank of quadratic equations select ALL of the equations that match the situation given
(Hint- You may want to get them all into vertex form first so you can analyze them easier)

A) $y = -(x + 7)^2 - 2$	**B)** $y = -x^2 - 6x - 10$	**C)** $y = 2(x - 5)^2 - 1$
D) $y = x^2 + 6x + 6$	**E)** $y = \frac{1}{4}(x + 1)^2 + 2$	**F)** $y = 4x^2 - 16x + 19$

9) Which equations have a positive infinity end behavior?

10) Which of the equations have a negative infinity end behavior?

11) Which of the equations would have a vertex above the x-axis?

12) Which of the equations would have a vertex below the x-axis?

13) Which of the following have a positive value for the axis of symmetry?

14) Which of the following would be transformed by being narrower than the parent function?

15) Which functions would have a left transformation?
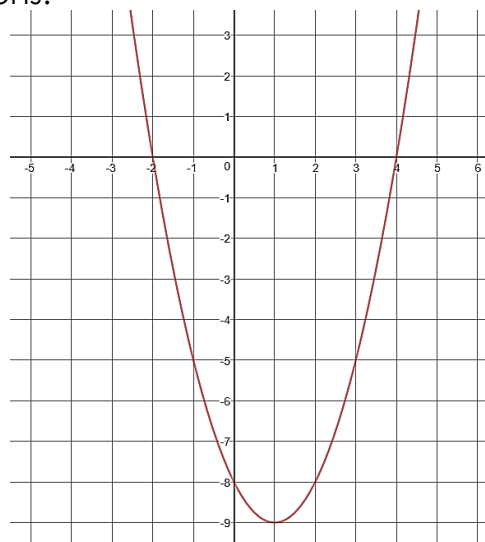
Part D: Analyzing a graph

Given the graph below answer the following questions:

16) Vertex:_____

17) Axis of Symmetry:_____

18) Zeros:_____

19) Y-intercept:_____

Part E: Application

A frog is about to hop from the bank of a creek. The path of the jump can be modeled by the equation **$h(x) = -x^2 + 4x + 1$**, where $h(x)$ is the frog's height above the water and x is the number of seconds since the frog jumped.

20) At what **time** does the frog reach its maximum height?

21) What is the **maximum height** of the frog at this point in time?