

Algebra II
Quadratics Review #2

Name _____

1. Given: $y = -\frac{1}{2}(x+4)^2 - 1$, circle all that apply.

opens up/down

wider/narrower

left/right ____

up/down ____

Vertex: (,)

Axis of Symmetry: _____

y-intercept: _____

Rewrite in standard form.

Sketch:

2. Use the quadratic equation $y = -2x^2 - 16x + 5$ to answer the following questions.

- a. Does the quadratic open up or down?
- b. Does the parabola have a maximum or minimum value?
- c. What are the coordinates of the vertex?
- d. Rewrite the equation in vertex form.
- e. Identify the equation for the axis of symmetry.
- f. What are the coordinates of the y intercept?
- g. Identify the domain and range.
- h. Sketch the parabola. Make a table that has at least 3 points.

3. Find the equation for the quadratic that contains the points $(0, -3)$, $(2, 7)$, $(4, 13)$. (Do this without a graphing calculator, then check your answer with the Quadratic Regression feature of your calculator)

4. Write the equation for the parabola with the given features:

a. focus $(-4, 3)$ and vertex $(-4, 6)$

b. vertex $(0, 5)$ and directrix $y = 4$

c. focus $(2, 7)$ and directrix $y = 10$

5. Find the focus, directrix, vertex, and sketch. $y = -\frac{1}{16}(x-2)^2 + 5$

6. An object is launched into the air from a ledge 16 feet off the ground with an initial velocity of 96 feet per second. Its height H , in feet, at t seconds is given by the equation: $H = -16t^2 + 96t + 16$.

a.) What is the maximum height the object will be off the ground?

b.) How long will it take for the object to reach that height?