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Practice Assessment Unit 1 Exam

1A & 1B For each quadratic below, give the coordinates of the vertex. Find the concavity, the width, and the axis of symmetry. Then, convert each quadratic into standard form.

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

2. $y = 4(x - 3)^2 + 12$

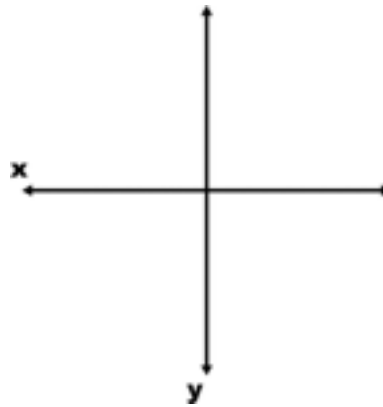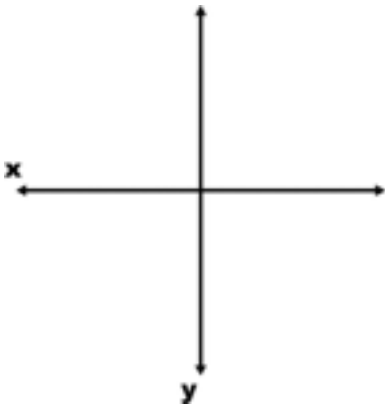Vertex:

Concavity:

Width:

Axis of Symmetry:

Vertex:

Concavity:

Width:

Axis of Symmetry:

1C Sketch what each equation above would look like on the axes below.

1D Write the following equations in **standard form.** **Hint: FOIL!

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

2. $y = 4(x - 3)^2 + 12$

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1E Write the following standard form equations in **vertex form.** **Hint: Use your organizer!

$$y = 3x^2 - 24x - 15 \qquad\qquad y = -4x^2 + 8x - 1$$

1F Write the following equations in **factored form.**

$$y = x^2 + 12x + 32 \qquad\qquad y = x^2 + 3x - 10$$

1G Identify the **zeroes** of the following equations and graphs.

$$(6x + 1)(x + 11)$$

$$-2(x-1)^2 + 18$$

1B The vertex of a parabola is at (1, 4) and has an x-intercept at (6,0). Write an equation for this parabola.
**Hint: Solve for a!

1E At a swim meet, Janet dives from a diving board that is 48 feet high. Her position above the water is represented by the equation h(t) = -16t^2+ 24t + 40, where t represents time in seconds and h(t) represents height in feet. What is Janet's maximum height and how long does it take her to get there?

1H From the previous problem, how long does it take for Janet to hit the water?

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1H Suppose Brett and Andre each throw a baseball into the air. The height of Brett's baseball is given by

$$h(t) = -16t^2 + 79t + 6,$$

where h is in feet and t is in seconds. The height of Andre's baseball is given by the graph below:

height (in feet)
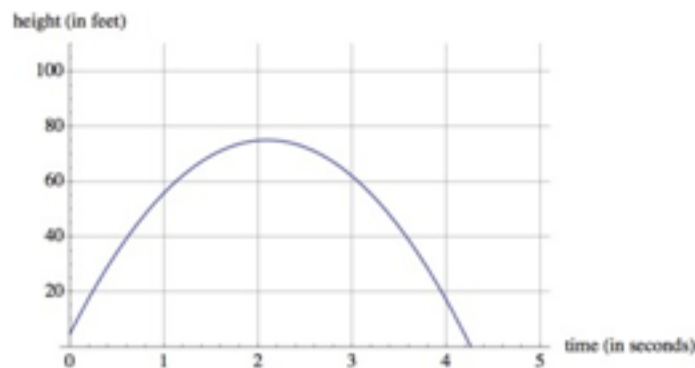
Brett claims that his baseball went higher than Andre's, and Andre says that his baseball went higher.

a. Who is right?

b. How long is each baseball airborne?

c. Construct a graph of the height of Brett's throw as a function of time on the same set of axes as the graph of Andre's throw (if not done already), and explain how this can confirm your claims to parts (a) and (b).