

1. Graph the following equation. Label the vertex and 4 other exact coordinated (5 total)

$$y = 2x^2 + 4x + 1$$

2. Graph the following function. Label the vertex, focus, directrix, and axis of symmetry.

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

3. Graph the following function. Label the vertex, focus, directrix, and axis of symmetry.

$$y = -\frac{1}{12}(x + 3)^2$$

4. Graph the following parabola. Label the vertex, focus, directrix, and axis of symmetry.

$$x = -\frac{1}{4}y^2$$

5. The vertex of a parabola is (-2, 4) and the focus is (-2, 1). What is the directrix of the parabola? Write an equation for the parabola. [Hint: Sketch a picture]

6. The focus of a parabola is (2, 0) and the directrix is $x = -2$. What is the vertex of the parabola? Write an equation for the parabola. [Hint: Sketch a picture]

7. A quadratic function passes through the points (-1, 0) (2, 0) and (0, -6) . Create an equation for this function. Leave your answer in Factored Form

[Hint: Factored form is $y = a(x - x_1)(x - x_2)$ where x_1 and x_2 are x intercepts... you need to find a]

8. The path of a tennis ball being hit by a racket is modeled by the function $h(x) = -4t^2 + 12t + 3$ where $h(x)$ is the height in feet and t is the time in seconds.

- What is the maximum height reached by the tennis ball?
- How long does it take for that ball to reach the maximum height?
- How high off the ground is the tennis ball when it is initially hit?

-Each group of four gets one problem that they need to master. 8 groups total

-Teacher checks each group as they finish for correct answer. Stamp each student paper to show certification

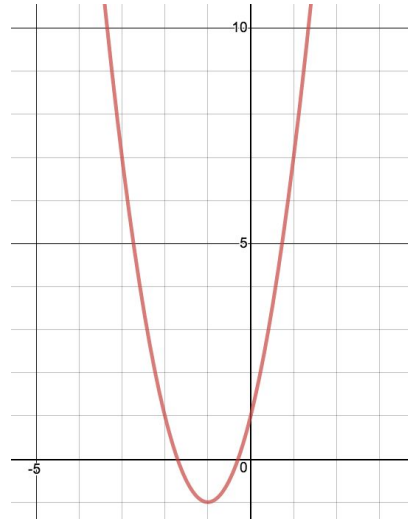
-Once mastered, they are certified to teach that problem to other students.

-Students must find a certified member of each of the other seven groups to complete the activity

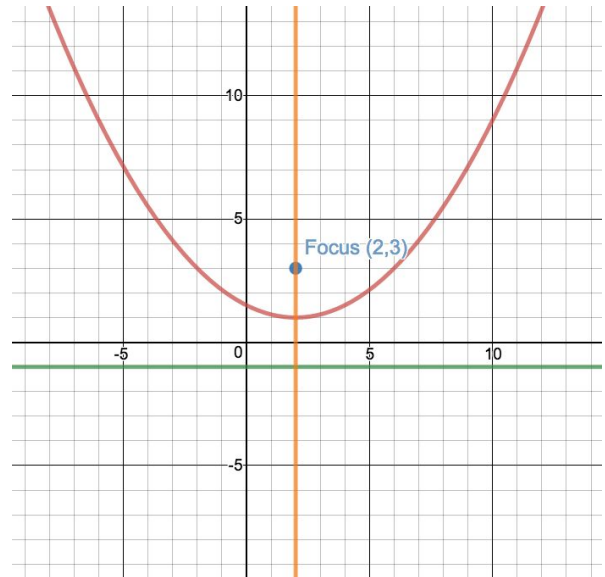
-Cut out the following strips and give one to each group (recollect). Each student gets a Student Answer Sheet.

Answer Key (for teacher use)

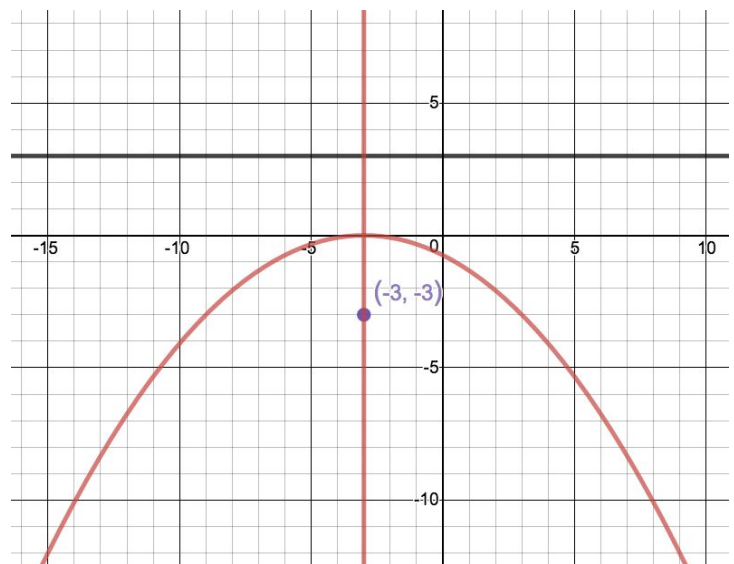
1. Vertex $(-1, -1)$
Coordinates $(-3, 7)$ $(-2, 1)$ $(0, 1)$ $(1, 7)$



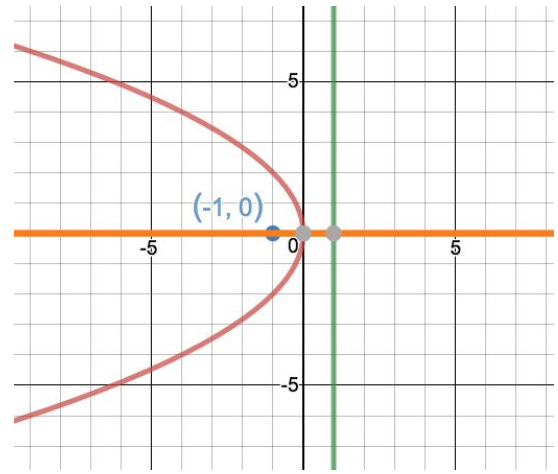
2. Vertex $(2, 1)$
Focus $(2, 3)$
Directrix $y = -1$
A.O.S. $x = 2$



3. Vertex $(-3, 0)$
Focus $(-3, -3)$
Directrix $y = 3$
A.O.S. $x = -3$



4. Vertex (0, 0)
Focus (-1, 0)
Directrix $x = 1$
A.O.S. $y = 0$



5. Directrix $y = 7$
 $y = -\frac{1}{12}(x + 2)^2 + 4$

6. Vertex (0, 0)
 $x = \frac{1}{8}y^2$

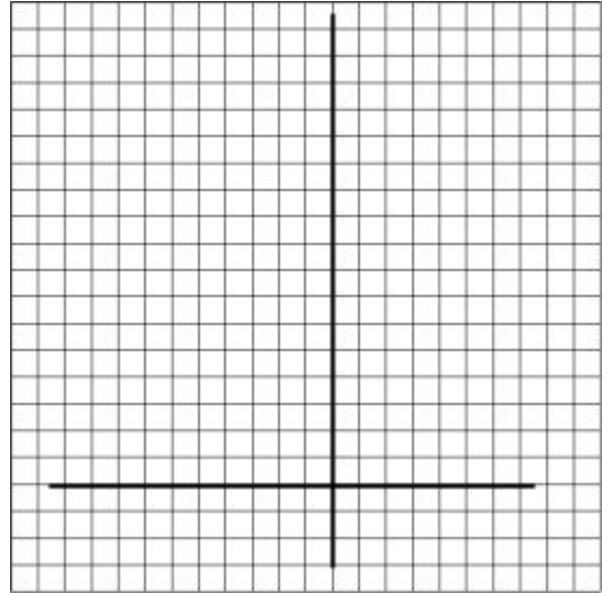
7. $y = 3(x + 1)(x - 2)$

8. a. Maximum height is 12 feet
b. Time is 1.5 seconds
c. Initial height is 3 feet

Unit 2 Review: Student Answer Sheet

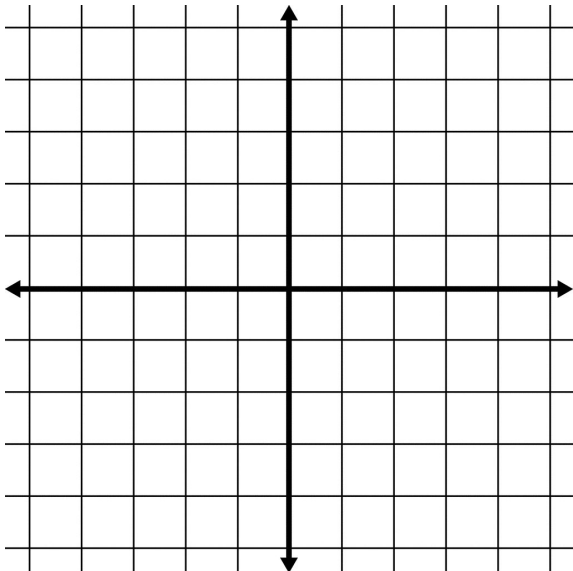
Complete your group's problem in the box that matches the number. Make sure to **write down all relevant information** from the problem, as you will be teaching it to other students in the class. Please show all of your work on the handout. Check with your teacher when complete. Make sure every member of your group understands!

1.



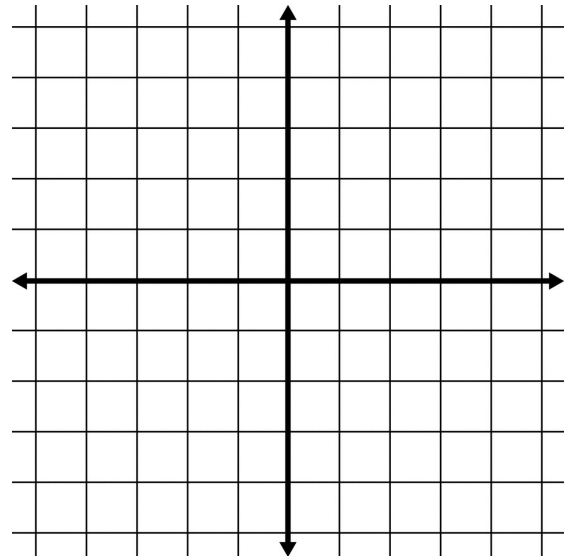
2.

Vertex:
Focus:
Directrix:
A.O.S.:



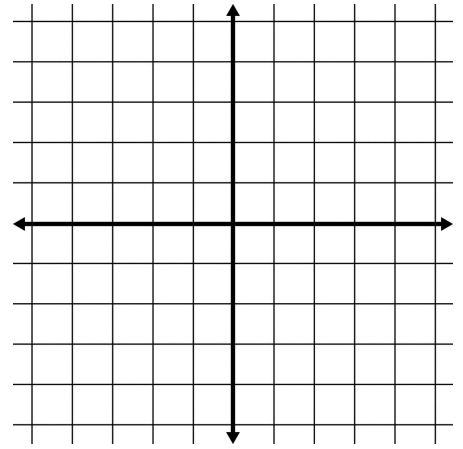
3.

Vertex:
Focus:
Directrix:
A.O.S.:



4.

Vertex:
Focus:
Directrix:
A.O.S.:



5. Vertex: _____ Focus: _____

Sketch:

Directrix:
Equation:

6. Focus: _____ Directrix: _____

Sketch:

Vertex:
Equation:

7. Coordinates: _____

8. Function: _____

a.

b.

c.

