

Name: \_\_\_\_\_ Period \_\_\_\_\_ Algebra II **AMI Day #3 : Thursday, March 19<sup>th</sup>, 2020**

The following assignment can be finished on a separate sheet of paper and will be due the first day back to school from an AMI day. This assignment must be completed and turned in to receive credit of attendance for that day. We will be available to answer any questions via email, [hasha@sccsd.k12.ar.us](mailto:hasha@sccsd.k12.ar.us) and [mullinsj@sccsd.k12.ar.us](mailto:mullinsj@sccsd.k12.ar.us) from 8:00am to 3:25pm. Please be patient on responses, the weather may affect internet service and/or multiple students may be needing assistance at once.

### Understanding Quadratic Functions:

1. How can you find the maximum or minimum of a quadratic function? Explain.
2. Micah found the vertex for the function  $y = -9.5x^2 - 47.5x + 63$  as shown. Find and correct Micah's error.

$$x = -\frac{b}{2a}$$

$$x = -\frac{47.5}{2(-9.5)}$$

$$x = -\frac{47.5}{-19}$$

$$x = -(-2.5)$$

$$x = 2.5$$

$$y = -9.5(2.5)^2 - 47.5(2.5) + 63$$

$$y = -59.375 - 118.75 + 63$$

$$y = -115.125$$

3. Find the vertex of  $y = 3x^2 + 12x - 5$ .
4. Find the vertex and y-intercept of the quadratic functions.
  - a.  $y = x^2 - 8x + 11$
  - b.  $y = -2x^2 - 12x - 5$
5. Write the equation of a quadratic function in standard form for the parabola that passes through the given points:  $(-1, 5)$ ,  $(4, 0)$ ,  $(5, -7)$
6. A college's business office found the relationship between the number of admissions counselors they employ and the college's profit from tuition could be modeled by the function  $y = -10x^2 + 1500x - 35000$ .
  - a. Graph the function.

- b. How many admissions counselors should the college employ to maximize its profit?
- c. What is the maximum amount of profit the college can make?
7. Consider the quadratic function  $y = 5x^2 - 50x - 100$ . Which of the following are true? Select all that apply.
- a. Vertex is (5, -225)
  - b. Y-intercept (0, 100)
  - c. Passes through the point (-1, -45)
  - d. Minimum height occurs when  $x = 5$
  - e. Maximum height occurs when  $x = 5$
8. Which quadratic equation contains the three points (-4, 12), (2, 42), and (3, 40)?
- a.  $y = -x^2 + 3x + 42$
  - b.  $y = 1.7x^2 - 10x - 55.2$
  - c.  $y = -1.7x^2 + 10x + 55.2$
  - d.  $y = x^2 - 3x - 40$
  - e.  $y = -x^2 + 3x + 40$