

Name: \_\_\_\_\_ Period \_\_\_\_\_ Algebra II **AMI Day #4: Friday, March 20<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. Tamara says that raising the complex number  $i$  to any integer power results in either -1 or 1 as the result, since  $i^2 = -1$ . Do you agree with Tamara? Explain.

2. Describe and correct the error a student made when dividing complex numbers.

$$\frac{1+3i}{3-i} =$$
$$\frac{1+i}{3-i} * \frac{1-i}{3+i} =$$
$$\frac{1-i^2}{9-i^2} =$$
$$\frac{2}{10}$$

3. Use square roots to solve each equation over the complex numbers.

- a.  $x^2 = -5$

- b.  $x^2 = -18$

4. Add or subtract. Write the answer in the form of  $a+bi$ .

- a.  $(3 - 2i) - (-9 + i)$

- b.  $2i - (2i - 11)$

5. Write each product in the form of  $a+bi$ .

- a.  $(3i)(5 - 4i)$

- b.  $(8 + 3i)(8 + 3i)$

6. Solve each equation.

- a.  $x^2 + 81 = 0$

b.  $25x^2 + 9 = 0$

c.  $4 + 49y^2 = 0$

7. A rocket is launched into the air. The path of the rocket is modeled by the equation  $y = -10x^2 + 160x - 100$ . What is the maximum height reached by the rocket, in feet?
8. What is the hardest part of working on AMI assignments outside of the classroom? Do you have any ideas on how we could make it easier for you?