**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Advanced Algebra II – Assignment 4-6**

9-75 Is 5 + 2i a solution to x2 – 10x = -29? How can you be sure?

9-78 Calculate the value of each expression below.

a.  b.  c. (4i)2 d. (3i)3

9-81 Find the roots of each of the following quadratic functions by solving for x when y = 0. Does the graph of either of these functions intersect the x-axis?

a. y = (x+5)2 + 9 b. y = x2 – 4x + 9

9-83 In parts (a) through (d) below, look for patterns as you calculate the sum and the product for each pair of complex numbers. Use what you find to answer parts (e) through (g).

a. 2 + i, 2 – i b. 3 – 5i, 3+ 5i

c. -4 + i, -4 – i d. 1 + i, 1 - i

9-88 For each pair of numbers below, find a quadratic equation that has these numbers as solutions.

a. ¾ and -5 b. 3i and -3i

c. 5 + 2i and 5 – 2i d. -3 + , -3 - 

9-89 For each of the following sets of numbers, find the equation of a function that has these numbers as roots.

a. - 3 + i and -3 – i b. 5 +  and 5 - 

c. -2,  d. -4, - 3 + i and -3 – i

9-91 Decide which of the following equations have real roots, and which have complex roots without completely solving them.

a. y = x2 – 6 b. y = x2 + 6

c. y = x2 – 2x + 10 d. y = x2 – 2x – 10

e. y = (x-3)2 – 4 f. y = (x-3)2 + 4