Name \_Key\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_

Directions: Convert each expression into a complex number in the form

|  |  |
| --- | --- |
| 1) | 2) |
|  | -> ->  -> -> |
| 3) | 4) |
| -> -> -> -> | -> -> -> -> -> |
| 5) | 6) |
| -> -> -> | -> -> |

**Challenge Problems**

Directions: These are optional bonus problems you may attempt if you desire.

|  |
| --- |
| **C1)** Prove that if is a root of the polynomial equation , with and (meaning that is complex and all coefficients are real), then (the complex conjugate of ) is also a root of the equation.  *Hint: Recall that the conjugate of a real number is the number itself.*  *Hint: Recall that the product of two conjugates is the same as the conjugate of their product.* |
| We know: . We want: .  We know and as .  We know as .  Hence: |