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

Directions: Convert each complex number to the form

|  |  |
| --- | --- |
| 1) | 2) |
| Draw a graph. Pythag triple;  Mag 2, Arg pi/3. | Draw a graph. Another pythag triple;  Mag 5. Arg isn’t easily calculable; just  use the formula: arctan(-3/4). |
| 3) | 4) |
| Easy. Magnitude 1, argument pi/2. | *Draw a graph.* This isn’t already in polar form. You can convert to standard to get , then plot that to get an easy triangle. Mag 1, arg pi/6. |

**Challenge Problems**

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

|  |
| --- |
| **C1)** Suppose you have the function . What would this function look like on the complex plane as *t* goes to infinity? What if *t* goes to negative infinity? Do these two graphs (as *t* goes to positive or negative infinity) intersect, and if so, where? |
| The graphs look like this, with t-> positive infinity rotating in the CCW direction and t-> negative infinity rotating in the CW direction. The graphs intersect every pi/2+pi\*k radians, so their intersections are: . The graph is on the next page. |

