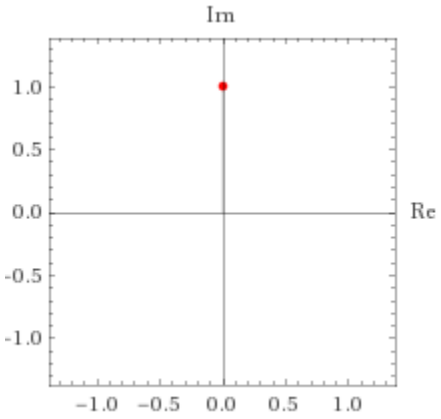
Name _____ Date _____

Directions: Convert each complex number to the form $r(\cos(\theta) + i\sin(\theta))$

1) $1 + i\sqrt{3}$

2) $4 - 3i$

3)



4) $\sin\left(\frac{\pi}{3}\right) + i\cos(\frac{\pi}{3})$

Challenge Problems

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

C1) Suppose you have the function $z = t(\cos t + i\sin t)$. 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?
Hint: t is a purely real variable. Feel free to use the back of the worksheet to draw a graph.