Complex Numbers

1. Let $z = 5 + 12i$. Find the following.

   (a) z^*

   (b) z^*z

   (c) $|z|$

   (d) z^2

   (e) $1/z$

2. Use the formula for $\sqrt{z}$ to find $\sqrt{i}$ and $\sqrt{-i}$.

3. Find two different values for z so that $z^2 = i$. Plot them on the complex plane.

4. Can you find a complex number z such that $z^2 = 1 + i$?