Instructions  Please write your name in the upper right-hand corner of the page. Write complete sentences to explain your solutions.

1. Determine the polar representation of the complex number $1 + i$.

2. Suppose $z$ is a complex number such that $|z| = 2$ and $\arg z = -3\pi/2$. Express $z$ in its standard form $x + iy$. 

3. Every complex number $z$ has the property that $|\text{Re } z| \leq |z|$. Why?

4. Suppose the complex numbers 0, $z$, and $w$ represent the vertices of an isosceles right triangle. If $z = 2 + i$, find a corresponding value for $w$. [The answer is not unique.]