Math 4552 – January 14, 2015 Due Wednesday, January 21, 2015

Homework 1

Reading: Chapter 1 Sections 1-4

Homwork Problems:

1. Show that $\operatorname{Re}(iz) = -\operatorname{Im} z$.
2. Show that $z = -1 \pm 2i$ are both roots of the equation $z^2 + 2z + 5 = 0$.
3. State and prove the distributive law for complex numbers.
4. Prove that if $z, w, v \in \mathbf{C}$ and $zwv = 0$ then at least one of z, w and v must be 0.
5. Show that $|\operatorname{Im} z| \leq |z|$
6. Show that $\sqrt{2}|z| \geq |\operatorname{Re} z| + |\operatorname{Im} z|$.