Math 295 - Fall 2020
Warm up 1.2
Due before class on Wednesday September 9

Please turn in this assignment on Gradescope.

Problem 1 : (Objectives A1, A5, A6) Find the absolute value and complex conjugate of each of the following:

a) $-2+i$

b) $(2+i)(4+3i)$

c) $\dfrac{3-i}{\sqrt{2}+3i}$

Problem 2 : (Objectives A1, A6) Find the real and imaginary parts of each of the following:

a) $\dfrac{z-a}{z+a}$, for any $a \in \mathbb{R}$

b) i^n for any $n \in \mathbb{Z}$

c) $\left(\dfrac{-1+i\sqrt{3}}{2}\right)^3$

Problem 3 : (Objectives A1, A6) Prove that $|z| = 1$ if and only if $\frac{1}{z} = \bar{z}$.

Problem 4 : (Objective A7) Use the triangle inequality and induction to show that

$$\left|\sum_{i=1}^{n} z_i\right| \leq \sum_{i=1}^{n} |z_i|.$$