MA437 - 2019 Spring - Take Home Assessment II - Dr. Clontz

Name: _____

Print and complete this assessment. It is due at the beginning of class on Thursday February 21.

Circle the most appropriate response for each.

Chapter 1 Computation

1. Compute $(5,-3)(2,-1)$.
   A. $(5,-9)$
   B. $(6,-11)$
   C. $(-4,7)$
   D. None of these.
2. Simpify $\overline{\sqrt{3}-6i-i(5+i\sqrt{3})}$.
   A. $-\sqrt{3}+4i$
   B. $5\sqrt{3}-2+i$
   C. $2\sqrt{3}+11i$
   D. None of these.
3. Compute $|10-24i|$
   A. -14
   B. 26
   C. 34
   D. None of these.
4. Express $(-16)^{-4}$ in $x+iy$ form.
   A. $\sqrt{2}-\sqrt{2}i$
   B. $2\sqrt{2}+2\sqrt{2}i$
   C. $-16\sqrt{2}-16\sqrt{2}i$
   D. None of these.
5. If $z=7e^{-i\pi/6}$, then what is its *principle* argument $\text{Arg}(z)$?
   A. $-7\pi/6$
   B. $-\pi/6$
   C. $7\pi/6$
   D. None of these.

Chapter 1 Proofs

Choose at most one of the following exercises to submit to the instructor.

11. Prove that $\frac{-b \pm i\sqrt{4ac-b^2}}{2a}$ is a solution to $az^2 + bz + c = 0$ whenever $4ac - b^2 \geq 0$.

12. Give a formula for the multiplicative inverse z^{-1} of $z = re^{i\theta}$ and prove that it works.