Math 130 - Quiz 9

December 2, 2020

Name _____

Score _____

The following problems are from the suggested homework. Show all work to receive full credit. Supply explanations when necessary. You must work individually on this quiz. This quiz is due by email on December 7.

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1. (1 point) Find the absolute value of $2.2 - 3.1i$.

2. (4 points) Write each complex number in polar form.

   (a) $8 - 4i$

   (b) $\sqrt{3} + i$

3. (0.5 point) Write the complex number $3(\cos 240^\circ + i \sin 240^\circ)$ in standard form.

4. (1.5 points) Compute $z_1 \cdot z_2$.

$$z_1 = \sqrt{5}\left(\cos\frac{5\pi}{8} + i\sin\frac{5\pi}{8}\right), \qquad z_2 = \sqrt{15}\left(\cos\frac{\pi}{12} + i\sin\frac{\pi}{12}\right)$$

5. (1.5 points) Compute z_1/z_2.

$$z_1 = 21(\cos 135^\circ + i\sin 135^\circ), \qquad z_2 = 3(\cos 65^\circ + i\sin 65^\circ)$$

6. (1.5 points) Find z^3 when $z = 5(\cos 45^\circ + i\sin 45^\circ)$.