

Video Quiz 11 (10 pts.)

Instructions: Show all of your work for full credit and submit by 3:30pm Mon. May 1, 2017.

1. (4 pts.) Let $z_1 = 5 + 5i$ and $z_2 = -4\sqrt{3} - 4i$.

(a) Plot z_1 and z_2 on a complex plane.

(b) Convert z_1 and z_2 to polar coordinates.

(c) Find $z_1 z_2$ in polar form.

(d) Find $\frac{z_1}{z_2}$ in polar form.

2. (2 pts.) Find the value of each expression using De Moivre's theorem. Leave your answer in **polar form**.

(a) $z = (2e^{(30^\circ)i})^8$

(b) $z = (5e^{(\frac{11\pi}{6})i})^2$

3. (4 pts.) Find the value of the following expressions using De Moivre's theorem and write your answer in **rectangular form**.

(a) $(1 - i)^8$

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