ACMAT118 Spring 2024
Professor Manguba-Glover
Sections 8.6 Homework (HW 16)   Name: _____

Show all work and simplify all answers before circling/boxing them. If you do the problem
incorrectly, or don't show sufficient work, you will be asked to rewrite the problem for full credit.

Due next class. Students who turn assignments in late (or do not attempt a problem) forfeit
their ability to rewrite those problems for credit.

1. Plot the numbers on the complex plane: $3 + 2i$, $-1 + i$, $3i$, $-1 - i$

2. Convert the number to trigonometric form: $-1 + i$

3. Convert the number to trigonometric form: $-\frac{\sqrt{3}}{2} + \frac{1}{2}i$

4. Complete the operation: $6\left(\cos\frac{3\pi}{4} + i\sin\frac{3\pi}{4}\right) \cdot \left(\cos\frac{\pi}{4} + i\sin\frac{\pi}{4}\right)$
   Express your answer in standard form.

5. Complete the operation: $5(\cos 90° + i\sin 90°) \cdot 2(\cos 30° + i\sin 30°)$
   Express your answer in standard form.

6. Complete the operation: $9(\cos 45° + i\sin 45°) \div 3(\cos 15° + i\sin 15°)$
   Express your answer in standard form.

7. Complete the operation: $\cos\frac{\pi}{12} + i\sin\frac{\pi}{12} \div \left(\cos\left(-\frac{\pi}{4}\right) + i\sin\left(-\frac{\pi}{4}\right)\right)$
   Express your answer in standard form.

8. Complete the operation: $\left(2(\cos 30° + i\sin 30°)\right)^3$
   Express your answer in standard form.