ACMAT118 Spring 2024
Professor Manguba-Glover
Sections 8.6 Classwork (CW 14) Name: _____

Complete as many of the following problems as you can with your table. You do not have to go in order. If **your entire group** finishes early, and your answers have been checked, you may leave early.

1. Convert the following complex numbers to trigonometric form:

   (a) $-4+4i$ (b) $2-\frac{2}{\sqrt{3}}i$

2. Convert the complex number to standard form:

   (a) $8\left(\cos\frac{11\pi}{6}+i\sin\frac{11\pi}{6}\right)$ (b) $4\left(\cos\frac{4\pi}{3}+i\sin\frac{4\pi}{3}\right)$

3. Carry out the indicated operation(s):

(a) $3\left(\cos\frac{\pi}{3}+i\sin\frac{\pi}{3}\right)\cdot 4\left(\cos\frac{7\pi}{4}+i\sin\frac{7\pi}{4}\right)$

(b) $\dfrac{\sqrt{2}\left(\cos\frac{8\pi}{3}+i\sin\frac{8\pi}{3}\right)}{\frac{\sqrt{2}}{2}\left(\cos\frac{\pi}{2}+i\sin\frac{\pi}{2}\right)}$

(c) $(3+3i)^4$

Key:

1. (a) $4\sqrt{2}\left(\cos\frac{3\pi}{4}+i\sin\frac{3\pi}{4}\right)$

   (b) $\frac{4}{\sqrt{3}}\left(\cos\frac{11\pi}{6}+i\sin\frac{11\pi}{6}\right)$

2. (a) $4\sqrt{3}-4i$

   (b) $-2-2\sqrt{3}i$

3. (a) $12\left(\cos\frac{pi}{12}+i\sin\frac{\pi}{12}\right)$

   (b) $2\left(\cos\frac{\pi}{6}+i\sin\frac{\pi}{6}\right)$

   (c) -324