1. Write the complex numbers in polar form:

a. $1+i$

b. $-1+i$

c. $1-\sqrt{3}i$

d. $4-4i$

e. -2

2. Write the following complex number in rectangular form:

a. $2\left[\cos\left(\frac{2\pi}{3}\right)+i\sin\left(\frac{2\pi}{3}\right)\right]$

b. $4\left[\cos\left(\frac{7\pi}{4}\right)+i\sin\left(\frac{7\pi}{4}\right)\right]$

c. $2\left[\cos\left(\frac{5\pi}{6}\right)+i\sin\left(\frac{5\pi}{6}\right)\right]$

d. $3\left[\cos\left(\frac{3\pi}{2}\right)+i\sin\left(\frac{3\pi}{2}\right)\right]$

3. Simplify the expression and write your answer in standard form $a+bi$

a. $\left[4\left(\cos\left(\frac{2\pi}{9}\right)+i\sin\left(\frac{2\pi}{9}\right)\right)\right]^3$

b. $\left[2\left(\cos\left(\frac{\pi}{10}\right)+i\sin\left(\frac{\pi}{10}\right)\right)\right]^5$

c. $\left[\sqrt{2}\left(\cos\left(\frac{5\pi}{16}\right)+i\sin\left(\frac{5\pi}{16}\right)\right)\right]^4$

d. $\left[\sqrt{5}\left(\cos\left(\frac{3\pi}{16}\right)+i\sin\left(\frac{3\pi}{16}\right)\right)\right]^4$

e. $\left[\sqrt{3}\left(\cos\left(\frac{5\pi}{18}\right)+i\sin\left(\frac{5\pi}{18}\right)\right)\right]^6$

f. $(1-i)^5$

g. $\left(\sqrt{3}-i\right)^6$

4. Find all cube roots of $1+i$.

5. Find all fourth roots of $\sqrt{3}-i$.

6. Find all fourth roots of $4-4\sqrt{3}i$.

7. Find all the fifth roots of i

8. Find all the fourth roots of unity.

9. Find all the sixth roots of unity.