Complex Numbers- HW Problems

1. Express the following complex numbers in polar form (ie $z = re^{i\theta}$)

a. -1

b. $1 - i$

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

2. Express the following complex numbers in $a + bi$ form

a. $\frac{2}{1+i}$

b. $\frac{5i}{2+i}$

c. $e^{\frac{\pi i}{25}}$

d. $|3 + 4i|$

e. $|e^{\frac{\pi i}{25}}|$

f. $(1 - i)^3$

3. Find all of the solutions to the following equations.

a. $z^3 = -1$

b. $z^3 + 8i = 0$

c. $z^4 + 16 = 0$