Complex Exponentials:

1. Simplify the following expressions. Give your answers both in polar and in rectangular form.

a) $c = 3e^{j\pi/4} + 4e^{-j\pi/2}$

b) $c = (-1 + 2j)^5$

c) $c = 2e^{j\pi/2} - 3e^{j\pi/3}$

2. Use phasor addition to put the following into the form of $x(t) = A\cos(\omega t + \theta)$

a) $x(t) = \sin(4t) + 0.5\cos(4t)$

b) $x(t) = 60\sin(120\pi t) + 120\cos(120\pi t - 20^{o})$