PROBLEM:

Simplify the following and give the answer as a single sinusoid: $A\cos(\omega t + \phi)$. Draw the vector diagram of the complex amplitudes (phasors) to show how you obtained the answer.

(a) $x_a(t) = 2\cos(222\pi t - 5\pi/3) + \cos(222\pi t + 5\pi/6)$

(b) $x_b(t) = \cos(33.33\pi t + 17\pi) + \sqrt{2}\cos(33.33\pi t + 17.5\pi) + \sqrt{2}\cos(33.33\pi t + 18\pi)$

(c) $x_c(t) = \cos(60\pi t + 3\pi/4) + \cos(60\pi t + 5\pi/4) + 2\cos(60\pi t + \pi/4)$