PROBLEM:

The phase of a sinusoid can be related to time shift:

$$x(t) = A\cos(2\pi f_\circ t + \phi) = A\cos(2\pi f_\circ (t - t_1))$$

(a) When the frequency is $f_\circ = 200$ and $t_1 = 1/500$ sec, determine *all* possible values for the phase ϕ.

(b) If the phase is $\phi = -\pi/4$ and $x(t)$ has a positive peak at $t_1 = 0.001$ sec, determine the frequency $f_\circ$.

(c) If the phase is $\phi = 7.2\pi$ and $x(t)$ has a positive peak at $t_1 = 0.001$ sec, determine the frequency $f_\circ$. Make sure that your answer for $f_\circ$ is positive. Remember that the cosine function has a period of 2π. Is your answer unique? If not, give a general formula for all possible frequencies.