PROBLEM:

Consider the signal

$$x(t) = [10 + 20\sin(500\pi t)]\cos(1500\pi t)$$

(a) Sketch the two-sided spectrum of this signal. Be sure to label important features of the plot. *Hint: Recall the AM spectrum from a previous homework set.*

(b) Is this waveform periodic? If so, what is the period?

(c) What is the minimum sampling rate f_s that can be used in the following system so that $y(t) = x(t)$?