PROBLEM:

A signal composed of sinusoids is given by the following MATLAB code:

```
dt = 1/250;
tt = 0 : dt : 0.5;
xx = 9*cos(400*pi*tt+pi/3) + 8*sin(200*pi*tt) - 5 cos(1000*pi*tt);
```

(a) For the signal vector `xx`, determine the correct formula for the discrete-time signal in the form: $x[n] = \sum_{k=1}^{N} A_k \cos(\hat{\omega}_k n + \phi_k)$

(b) Convert all the digital frequencies ($\hat{\omega}_k$) in part (a) to the range $-\pi < \hat{\omega} \leq \pi$.

(c) Sketch the "digital" spectrum of this signal indicating the complex phasor value at each frequency. Only the range $-\pi < \hat{\omega} \leq \pi$ needs to be shown.