NAME: ________________________________ **October 2016**

Pre-Lab 6: **Physics 1320** **Profs. Tunks / Olness**

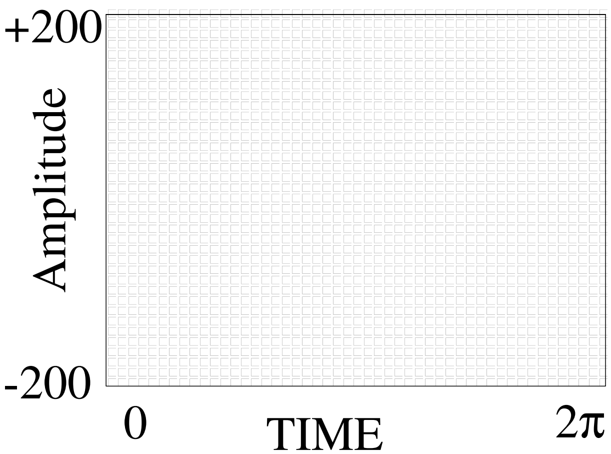
THIS IS SIMPLE, AND YOU MUST DO IT BY HAND. NO CREDIT FOR COMPUTER PLOTS.

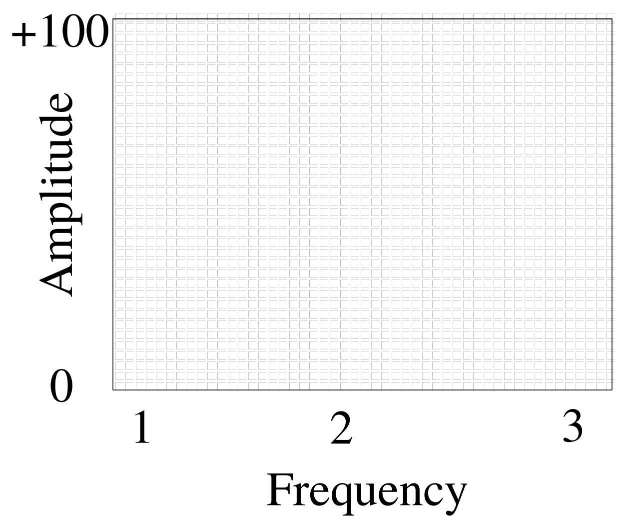
Problem #1) x(t) = 100 Sin[1 t] + 50 Sin[2 t] + 33 Sin[3 t].

You are given the above wave form x(t) = 100 Sin[1 t] + 50 Sin[2 t] + 33 Sin[3 t].
You will SKETCH (that means roughly accurate, but no overly so) both a time-domain and frequency-domain graph.

Let's start with the time-domain graph. Set up your axes so that the horizontal axis runs from t=[0,2 π] seconds, and your vertical axis running from -200 to +200.
First sketch 100 Sin[t] over the time interval t=[0,2 π] seconds.
Next, sketch 50 Sin[2 t] on the same plot.
Then, sketch 33 Sin[3 t] on the same plot.
Then, by eye, add up the three curves, and sketch this with a dark line.

A sample is shown below. (Do this on a large sheet of paper.)





Next, let's do the frequency-domain graph. Set up your axes so that the horizontal axis runs from frequency =1 to 3, and your vertical axis from 0 to 100.
For each of the 3 frequencies {1,2,3}, make a bar chart showing the appropriate amplitude {100,50,30}.

Problem #2) Repeat the above exercise for:

x(t) = 100 Sin[1 t] + 0 Sin[2 t] + 33 Sin[3 t].