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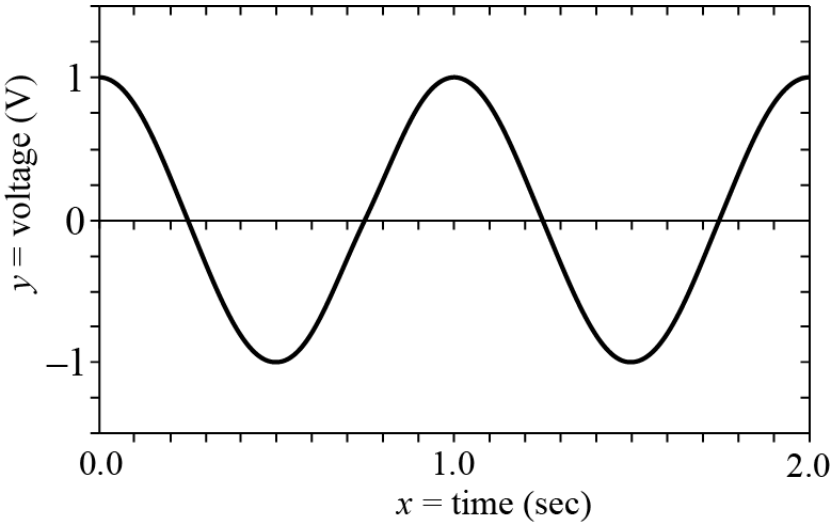
YOUR NAME(S): _____

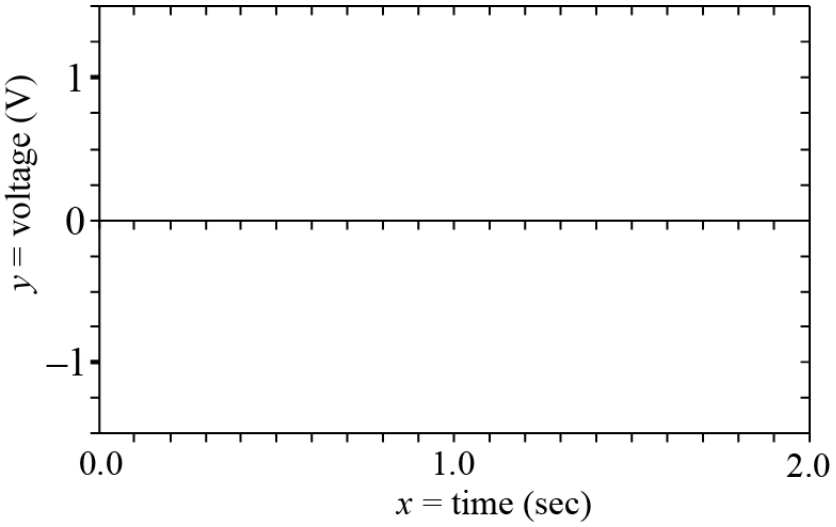
PROB: Using your graphing calculator, graph the following function.

$$y = \cos(2*\pi*x) - (1/3)*\cos(6*\pi*x) + (1/5)*\cos(10*\pi*x)$$

Start with one term and verify that you get the following waveform. Set the range of x values to [0, 2] and the range of y values to [-1.5, 1.5].



On the axes below, sketch the graph you get when you enter all three terms. If all goes well, you should see an emerging square wave. What you have plotted is the first three terms of a Fourier series for a square wave. If you see the pattern in the function and add more terms, you get a better approximation to a square wave.



Takeaway: We can sum sinusoids to create any repeating waveform.