This is the state of the PhET wave-on-a-string simulation when the string is very long so reflection can be ignored. What is the speed of the wave (assuming that the frequency is given in cycles/min?

For what frequencies will I generate a large (resonant) standing wave if I drive it with a small amplitude?

If we start our beaded string off
in a sinusoidal shape
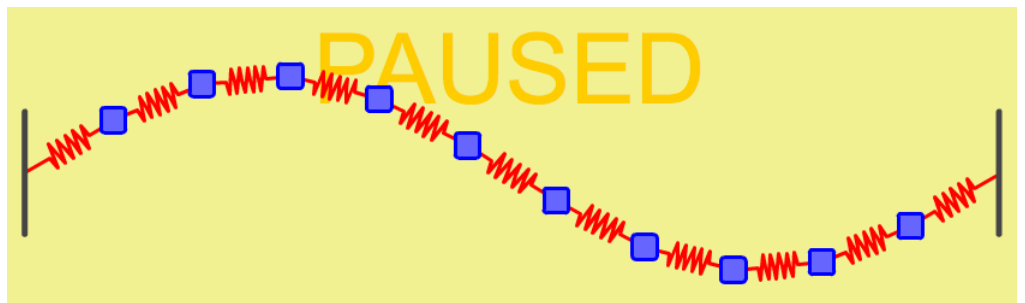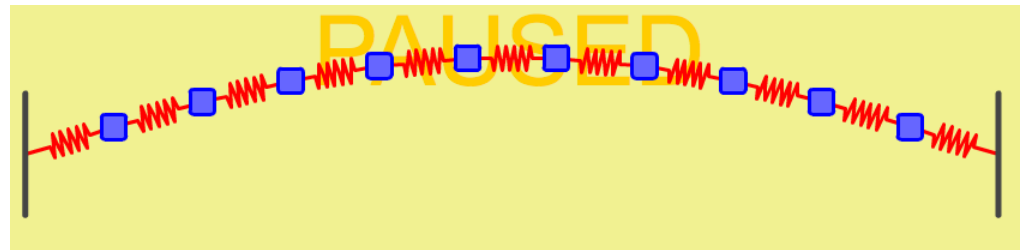
$$y(x) = A \sin(\pi x/L)$$

it will oscillate with a frequency f_0.
If we start it out with a shape

$$y(x) = A \sin(2\pi x/L)$$

with what frequency will it oscillate?

1. f_0
2. $2f_0$
3. $f_0/2$
4. Something else

If we start our beaded string off
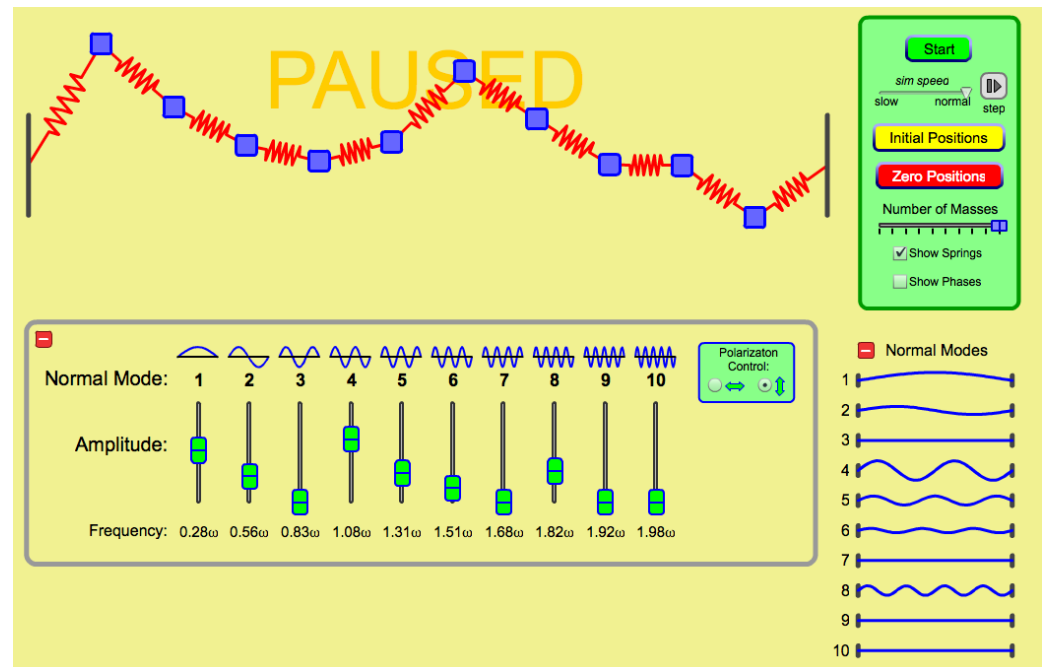in a sinusoidal shape
$$y(x) = A \sin(\pi x/L)$$
it will oscillate with a frequency f_0.
If we start it out with a complex shape
(shown) will it ever repeat itself?
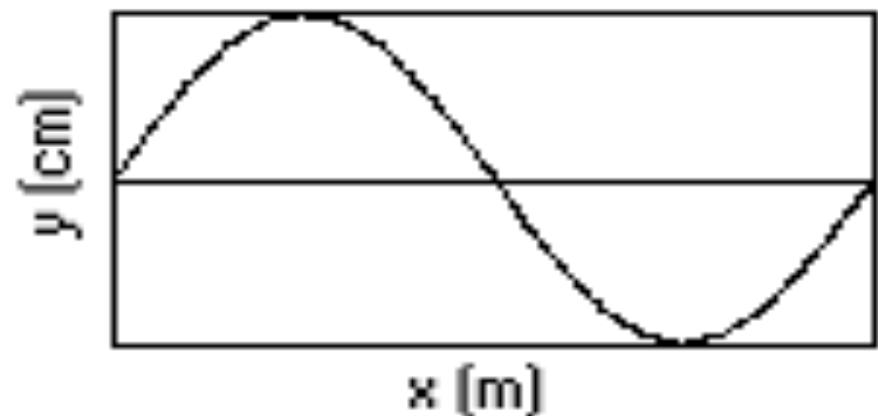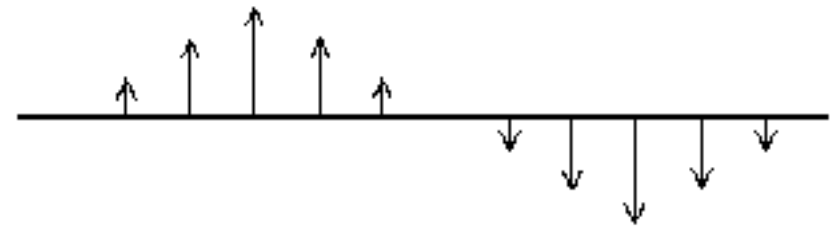If yes, with what frequency?

1. No
2. f_0
3. $2f_0$
4. $f_0/2$
5. Something else

In the figure below is shown a picture of a string at a time t_1. The pieces of the string are each moving with velocities indicated by arrows. (Vertical displacements are small and don't show up in the picture.) if the shape of the string at time t_1 is that shown below (displacement magnified by X100) then the motion of the string is

A. Left traveling wave

B. Right traveling wave

C. A standing wave increasing in amplitude

D. A standing wave decreasing in amplitude

E. None of these.

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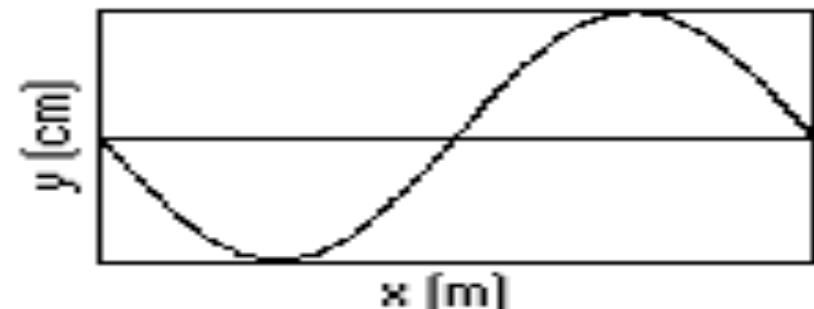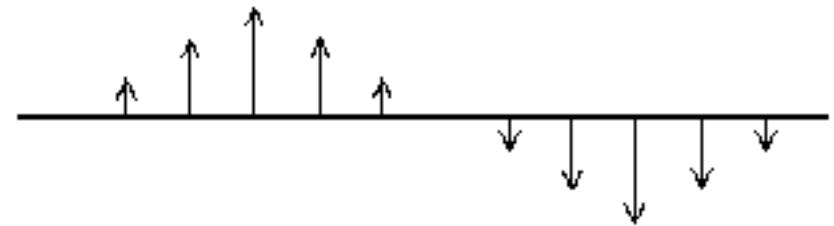
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