

SHOs and Graphs

E&M: ASASO I&P

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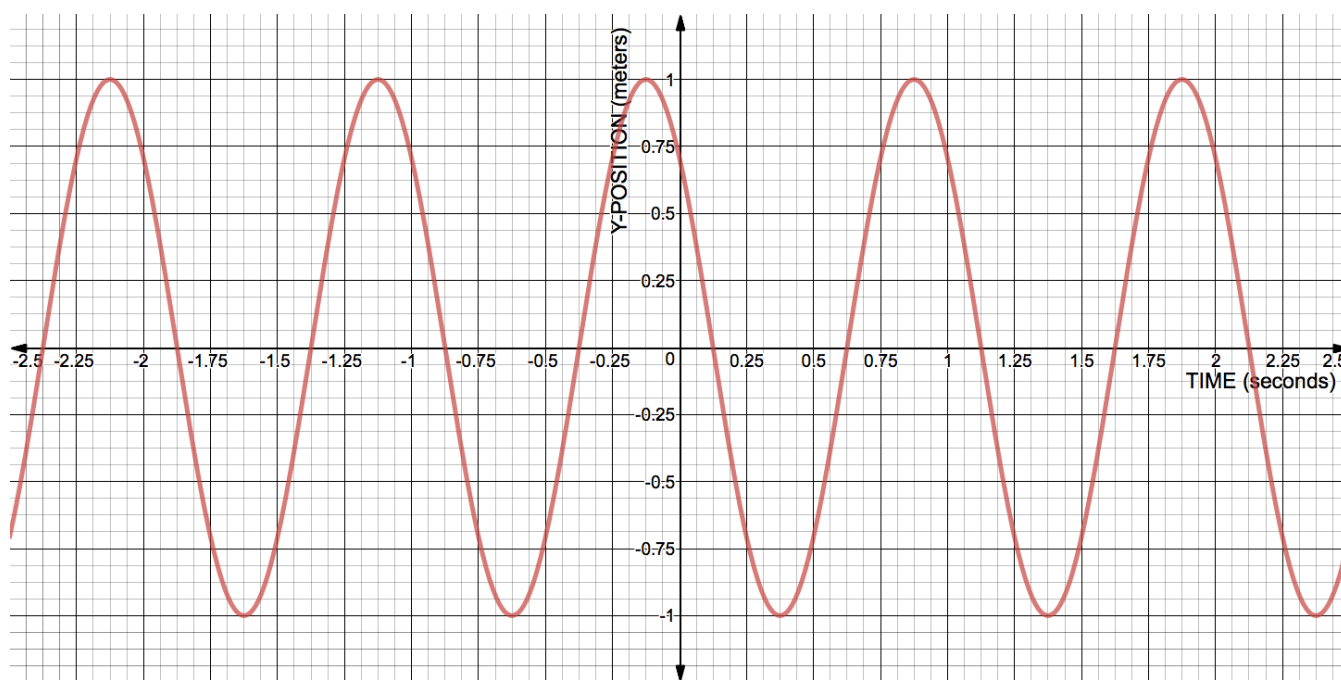
- 1) Go to Desmos (www.desmos.com) and click “start graphing.”

Input the function $Y=3\cos(2x+\phi)$. (You can just type “phi” and it will automatically make a ϕ symbol. The 3 and 2 are arbitrary: you can use different numbers if you want.)

A button will appear that says “add slider for ϕ .” Click this.

Slide the slider. See what happens.

- 2) The graph below shows the position-time graph for an SHO:

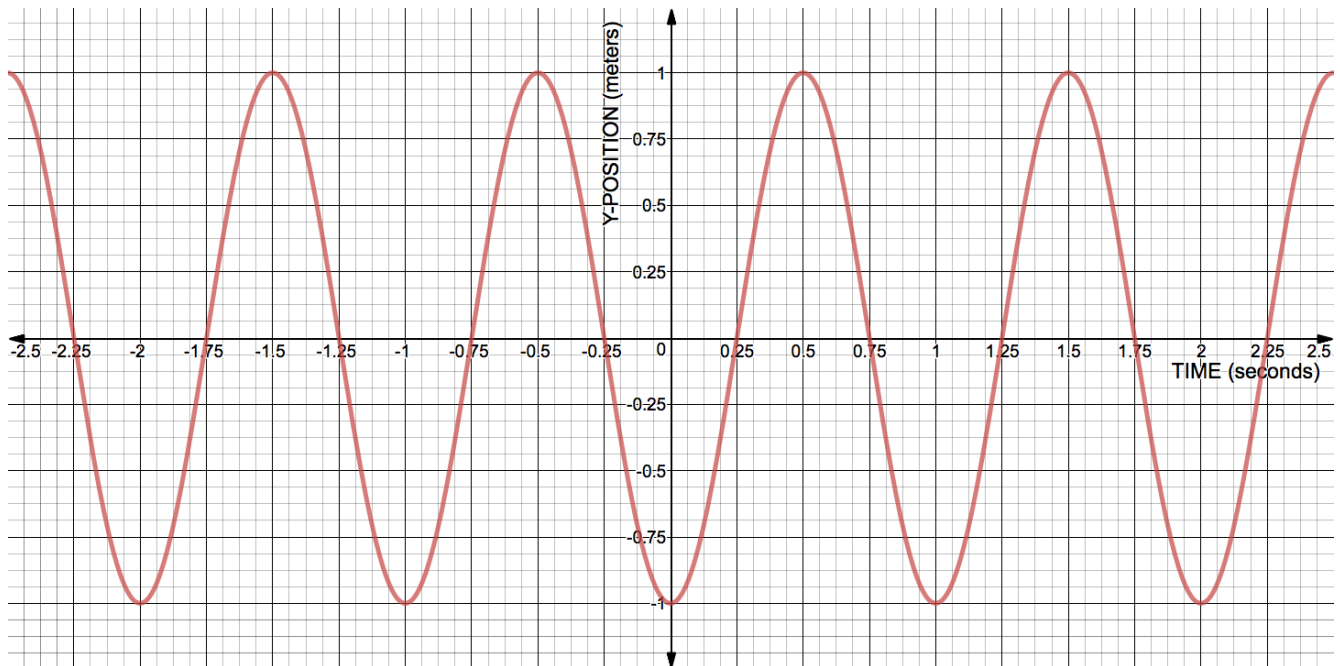


- A. What is the amplitude of this SHO?
- B. What is the angular frequency of this SHO?
- C. What is the phase constant of this SHO?
- D. What is the period of this SHO?
- E. Write down a function for this SHO.

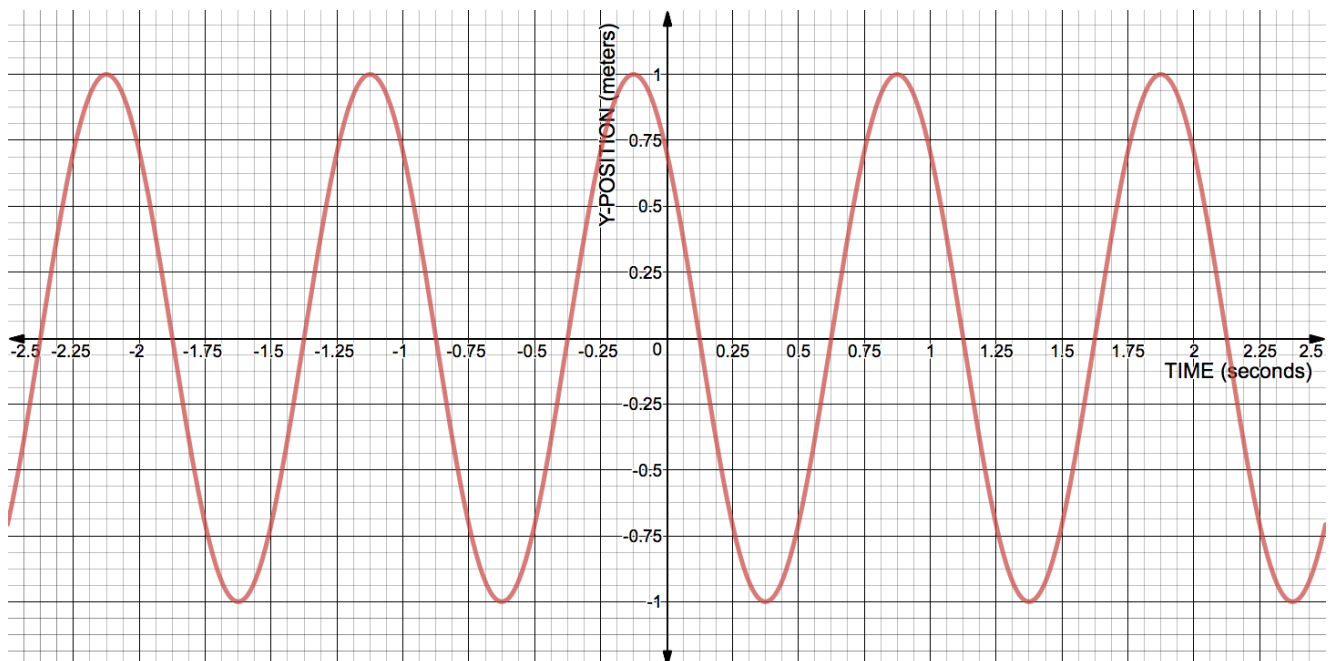
3) Below & on the following pages are a series of position/time graphs of SHOs.

A. Rank these graphs in order from LOWEST phase constant to HIGHEST phase constant. (Assume that all the phase constants are *positive*.)

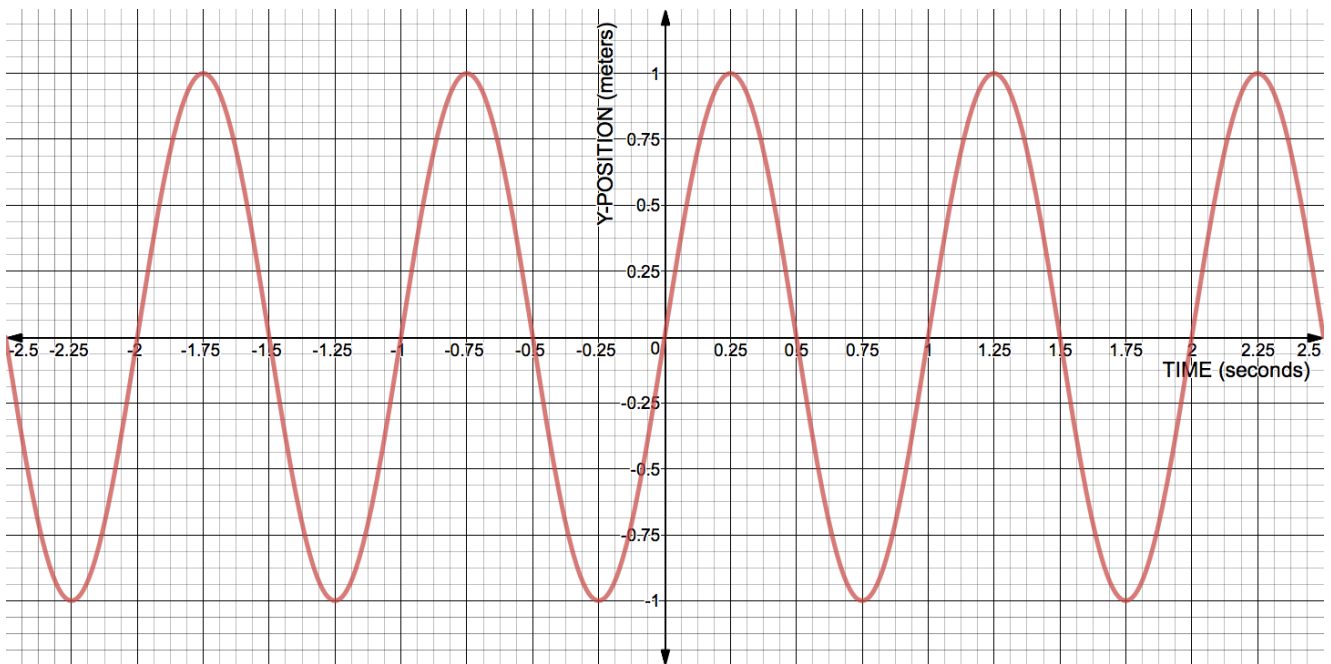
Graph A:



Graph B:



Graph C:



Graph D:

