

# SHOs and Graphs

## PHYSICS 204

JOHN JAY COLLEGE OF CRIMINAL JUSTICE, THE CUNY

DANIEL A. MARTENS YAVERBAUM, MAX BEAN

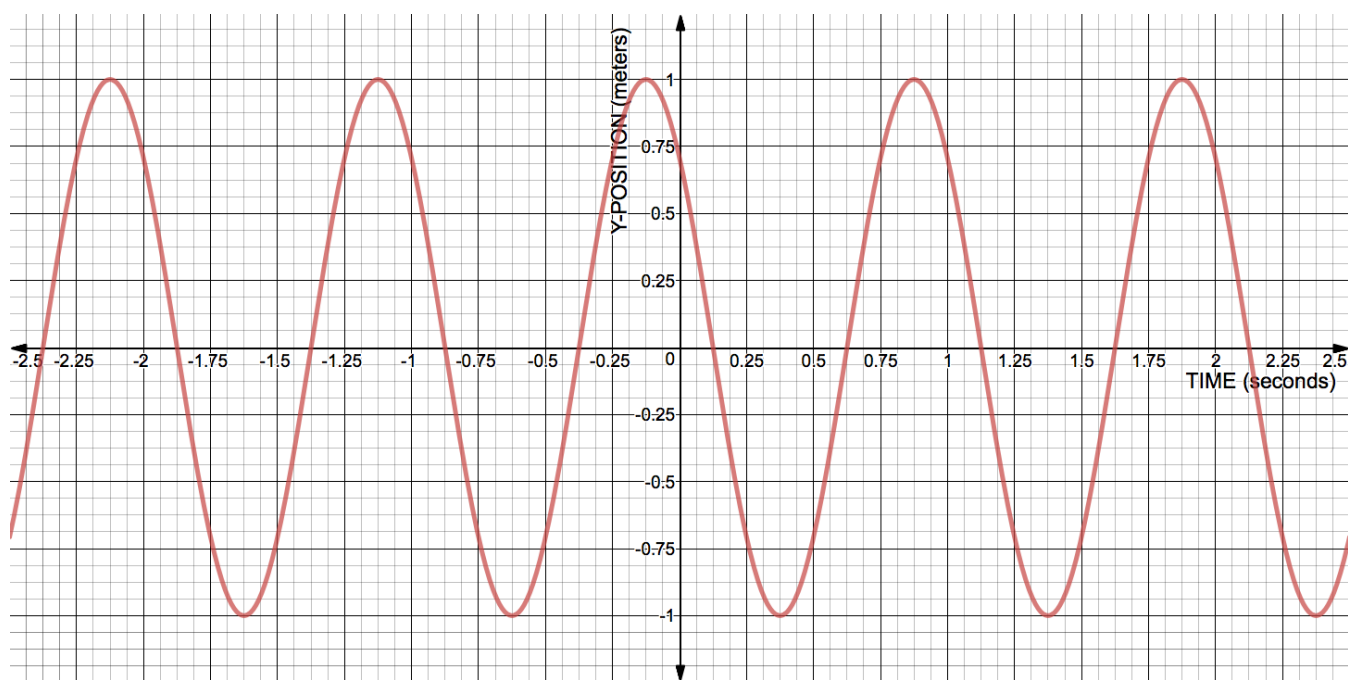
- 1) Go to Desmos ([www.desmos.com](http://www.desmos.com)) and click “start graphing.”

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

A button will appear that says “add slider for  $\phi$ .” Click this.

Slide the slider. See what happens.

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

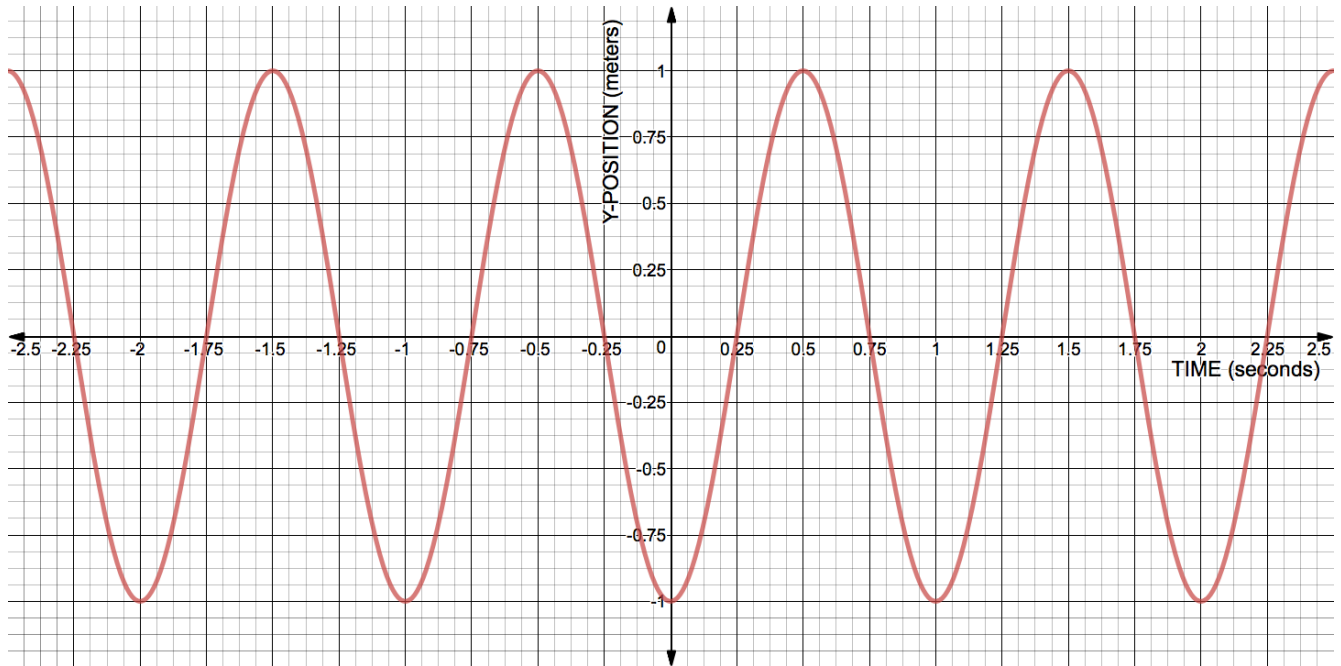


- What is the amplitude of this SHO?
- What is the angular frequency of this SHO?
- What is the phase constant of this SHO?
- What is the period of this SHO?
- Write down a function for this SHO.

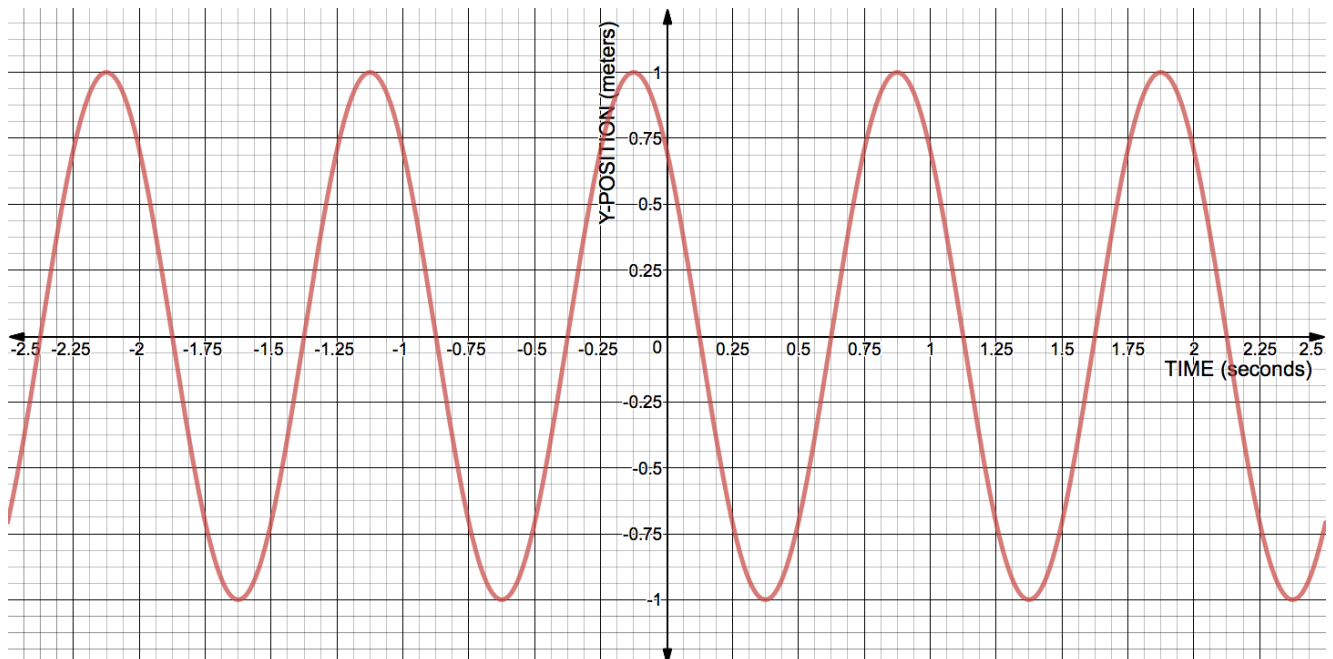
3) Below & on the following pages are a series of position/time graphs of SHOs.

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

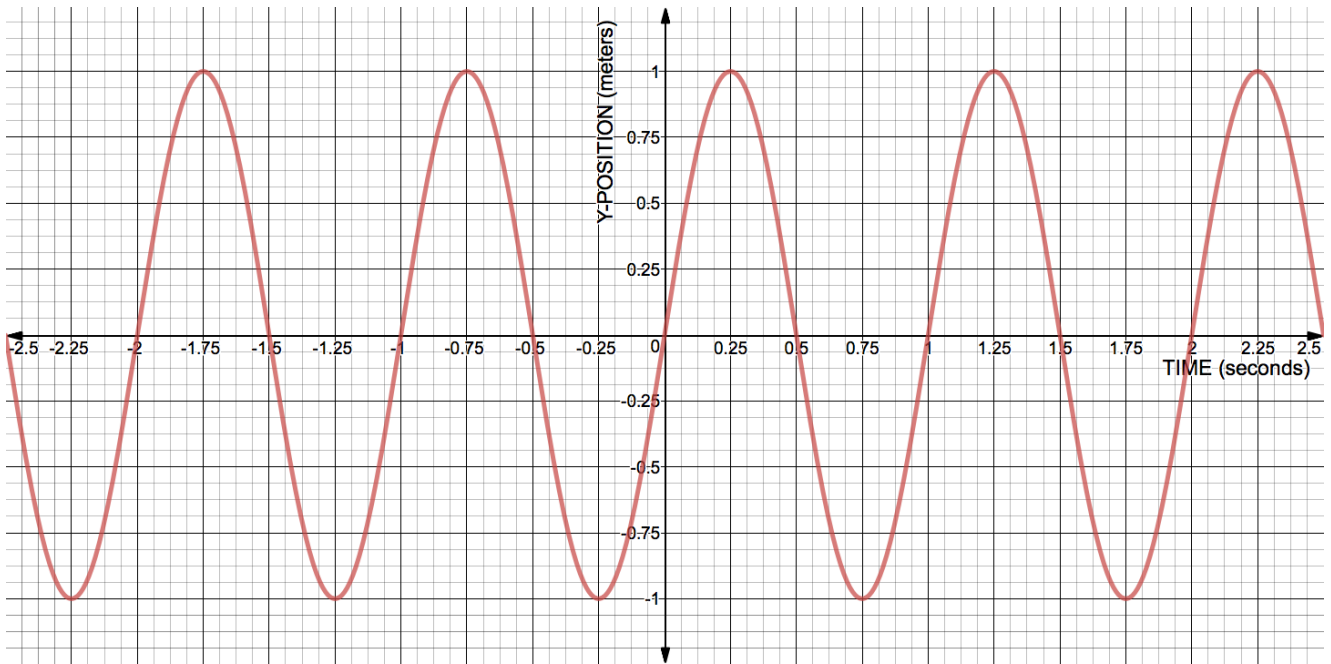
Graph A:



Graph B:



Graph C:



Graph D:

