**Practice 11.0 – Interpreting graphs of Simple Harmonic Motion** Name

Position Graphs

|  |  |
| --- | --- |
|  | 1. For this graph of position vs. time for an oscillator:a. xo = T = vo = . b. Write an equation for its motion: (x = ?)c. Write an equation for its velocity: (v = ?) |
|  | 2. For this graph of position vs. time for an oscillator:a. xo = T = vo = . b. Write an equation for its motion: (x = ?)c. Write an equation for its velocity: (v = ?) |
|  | 3. For this graph of position vs. time for an oscillator:a. xo = T = vo = . b. Write an equation for its motion: (x = ?)c. Write an equation for its velocity: (v = ?) |
| d. What is the position, velocity and acceleration of the object at 3.00 s, 4.00 s, and 6.50 s? | 4. For this graph of position vs. time for an oscillator:a. xo = T = vo = . b. Write an equation for its motion: (x = ?)c. Write an equation for its velocity: (v = ?) |

Velocity Graphs:

|  |  |
| --- | --- |
|  | 5. For this graph of velocity vs. time for an oscillator:a. vo = T = xo = . b. Write an equation for its velocity: (v = ?)c. Write an equation for its position: (x = ?) |
|  | 6. For this graph of velocity vs. time for an oscillator:a. vo = T = xo = . b. Write an equation for its velocity: (v = ?)c. Write an equation for its position: (x = ?) |
|  | 7. For this graph of velocity vs. time for an oscillator:a. vo = T = xo = . b. Write an equation for its velocity: (v = ?)c. Write an equation for its position: (x = ?) |
|  | 8. For this graph of velocity vs. time for an oscillator:a. vo = T = xo = . b. Write an equation for its velocity: (v = ?)c. Write an equation for its position: (x = ?) |
| d. What is the position, velocity and acceleration of the mass at 2.00 s? at 5.00 s?  |

9. For this graph of Position vs. Time:



Fill in the table qualitatively: (+ or - or 0)

|  |  |  |  |
| --- | --- | --- | --- |
| Time | x | v | a |
| 2.4 s |  |  |  |
| 7.2 s |  |  |  |
| 1.6 s |  |  |  |
| 3.0 s |  |  |  |
| 7.6 s |  |  |  |
| 6.5 s |  |  |  |
| 5.0 s |  |  |  |
| 3.2 s |  |  |  |

10. For this graph of Velocity vs. Time:



Fill in the table qualitatively: (+ or - or 0)

|  |  |  |  |
| --- | --- | --- | --- |
| Time | x | v | a |
| 3.2 s |  |  |  |
| 0.8 s |  |  |  |
| 1.6 s |  |  |  |
| 4.8 s |  |  |  |
| 6.0 s |  |  |  |
| 7.2 s |  |  |  |
| 8.4 s |  |  |  |
| 4.0 s |  |  |  |