Simple Harmonic Motion

Physics 513

Simple Harmonic Oscillator

A machine part is undergoing SHM with a frequency of 5.00 osc/sec and amplitude of 1.80 cm. How long does it take the part to go from x = 0 to x = -1.80 cm?

Whack!

In a physics lab, you attach a 0.200-kg airtrack glider to the end of an ideal spring of negligible mass and start it oscillating. The elapsed time from when the glider first moves through the equilibrium point to the second time it moves through that point is 2.60 s.
Find the spring's force constant

Ebb and Flow

An object is undergoing SHM with period 1.200 s and amplitude 0.600 m. At t = 0 the object is at x = 0 and is moving in the negative x-direction. How far is the object from the equilibrium position when t = 0.480 s?

SHM NRG

• You are watching an object that is moving in SHM. When the object is displaced 0.600 m to the right of its equilibrium position, it has a velocity of 2.20 m/s to the right and an acceleration of 8.40 m/s² to the left. How much farther from this point will the object move before it stops momentarily and then starts to move back to the left?