

29. ● A 0.150 kg toy is undergoing SHM on the end of a horizontal spring with force constant 300.0 N/m. When the object is 0.0120 m from its equilibrium position, it is observed to have a speed of 0.300 m/s. Find (a) the total energy of the object at any point in its motion, (b) the amplitude of the motion, and (c) the maximum speed attained by the object during its motion.
32. ●● 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?
36. ● A proud deep-sea fisherman hangs a 65.0 kg fish from an ideal spring having negligible mass. The fish stretches the spring 0.120 m. (a) What is the force constant of the spring? (b) What is the period of oscillation of the fish if it is pulled down 3.50 cm and released?
39. ●● A harmonic oscillator is made by using a 0.600 kg frictionless block and an ideal spring of unknown force constant. The oscillator is found to have a period of 0.150 s. Find the force constant of the spring.