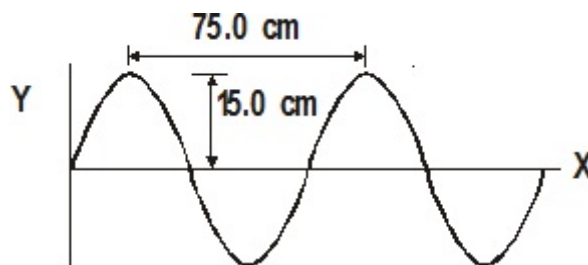


Name: _____

1. A 165 g plastic block is set up against a spring. The block rests on a smooth horizontal surface. The block is pushed into the spring, compressing it a distance of 15.0 cm and then released. The spring constant is $k = 677 \text{ N/m}$. (a) What is the speed of the block when it leaves the spring? (b) If the table is 0.875 m in height, what horizontal distance does the block travel after it leaves the table edge?

2. What is the wavelength for an FM radio signal that has a frequency of 107.8 MHz? (speed of light, c , is $3.00 \times 10^8 \text{ m/s}$)

3. The drawing shows a transverse wave's displacement vs distance graph. The wave is travelling at a speed of 2.50 m/s. Determine: (a) the wavelength, (b) the frequency of the wave, (c) the amplitude of the wave.



4. A wave has a frequency of 262 Hz. What is the time interval between successive wave crests?

5. A splendid light wave has a wavelength of 580 nm. What is the frequency of the wave?
6. A long spring runs across the floor. A pulse is sent along the spring. After a few seconds, an inverted pulse returns. Is the spring attached to the wall or lying loose on the floor? Why?
7. Draw a picture of two waves that display destructive interference.
8. Create a depiction of a standing wave. Point out the nodes and antinodes.
9. A spring has a constant of 625 N/m. A 275.0 g block is attached to it and is free to slide horizontally on a smooth surface. You give the block an initial displacement of 8.50 cm. What is (a) the maximum force (b) the maximum acceleration acting on the block, (c) the period of the system, and (d) the frequency of the system?

10. A pendulum has a period of 0.56 s. What is the length of the pendulum?

11. Here you are on Mercury. (a) What would be your weight on Mercury? Figure that your mass - spacesuit on, oxygen tank, bag for Mercury rocks, &tc. is 95 kg. Mercury has a radius of 2.43×10^6 m and a mass of 3.20×10^{23} kg. (b) What would be the acceleration of Mercury's gravity?