

Name: _____

Date: _____

Section

C

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The Masters School

Mr. Alex Rawson

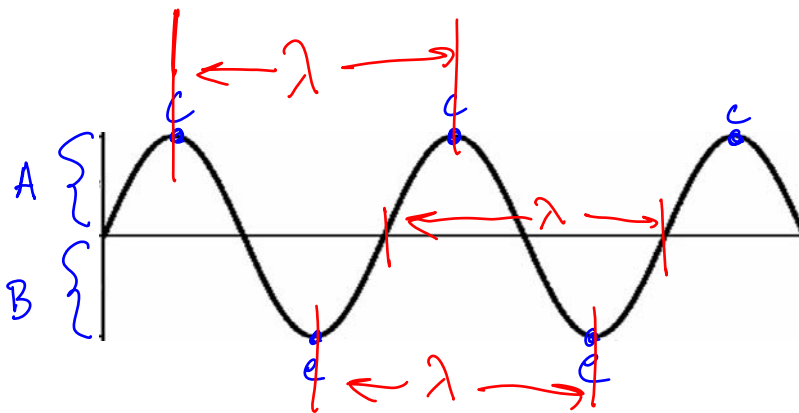
Physics



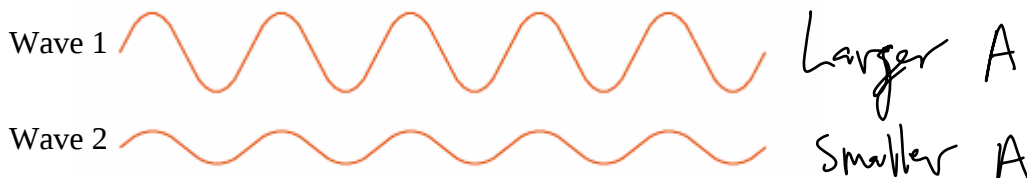
Harmonic Motion I

1. Label the parts of a wave below using these terms below. (2 pts)

- a. Positive Amplitude
- b. Negative Amplitude
- c. Crest
- d. Wavelength
- e. Trough



2. How does Wave 1 differ from Wave 2? Amplitude (1 pt)

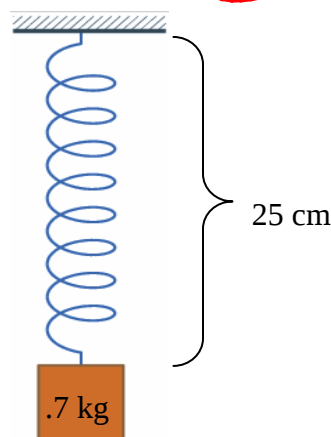


3. Can the spring constant be determined from the following picture?

Yes No (circle one) (2 pts)

a) Why or why not?

you do not know how
far the spring has
stretched



4. If a mass of .55 kg attached to a vertical spring stretches the spring 36 cm from it's equilibrium position, what is the spring constant of the spring? (you should get a number between 10 – 50) (2 pts)

$$m = .55 \text{ kg}$$
$$\Delta x = .36 \text{ m}$$

$$F = mg$$
$$F = (.55)(9.81)$$
$$F = 5.3955$$

$$F = kx$$

$$k = \frac{F}{x} = \frac{5.3955}{.36}$$

$$k = 15.0 \text{ N/m}$$

5. Below is a picture of the Golden Gate Bridge, standing 746 feet (227 m), above the waters of San Francisco. If you were to Bungee jump off of this bridge, with a 100 m bungee chord of spring constant 72 N/m, and it were to stretch 75 meters, how much of a force would you exert on it? Give the absolute value of the force. (2 pts)

$$\Delta x = 75$$
$$k = 72 \text{ N/m}$$

$$F = kx$$

$$F = 5400 \text{ N}$$

Launch point ————

Unstretched length = 100 m ————

Stretched length = 175 m ————

Height of bridge = 227 m ————

