

Name: _____

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Chapter 18.3 Homework

Conceptual Physics

Parent Signature: _____

Each numbered question is worth one point unless otherwise noted.

Reviewing Concepts

Section 18.3

11. The length of the ropes on a swing are made longer.

- a. What happens to the period of the swing?
- b. What happens to the frequency of the swing?

12. Pushing a child on a playground swing repeatedly at the natural frequency causes resonance, which increases the amplitude of the swing, and the child goes higher. If the pushes provide the periodic force of the system, what provides the restoring force? (0.5)

13. Identify the equilibrium position for the following situations. (1.5)

- c. A person on a swing
- d. A person bungee jumping
- e. A guitar string being plucked

14. What is resonance and how is it created? Give an example of a resonant oscillating system in nature. (2)

Solving Problems

9. The mass of a pendulum bob is increased by a factor of two. How is the period of the pendulum affected? (0.5)

10. Describe how you might change the natural frequency of the following oscillating systems. (2)

a. A guitar string

b. A playground swing

c. A paddle ball game with a ball attached to a paddle with an elastic

d. A diving board

11. How does decreasing the length of a pendulum affect its period? (0.5)