

Name: _____

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Chapter 3.3 Homework
Conceptual Physics

Parent Signature: _____

Reviewing Concepts

10. By how much does the speed of an object in free fall change each second? (1)

11. A ball is thrown straight up into the air. As it moves upward, its speed _____ by _____ each second. As it falls back down its speed _____ by _____ each second. (1)

12. An astronaut carries a rock from the Moon to Earth. Is the rock's mass the same on earth as it is on the Moon? Is its weight the same? Explain. (1)

13. What is the direction of air resistance on a falling object? (1)

14. Which two forces are equal when an object is at its terminal speed? (1)

Solving Problems

4. You drop a ball from the edge of a cliff. It lands 4 s later.

a. Make a table showing the ball's speed each second for 4 s. (1)

Speed				
Time (s)				

b. What is the ball's average speed during the first second it is in free fall? (0.5)

c. What is the ball's average speed for the whole 4 s? (0.5)

d. What distance does the ball fall during the 4 s? (0.5)

5. During a science experiment, your teacher drops a tennis ball out of a window. The ball hits the ground 3 s later.

a. What was the ball's speed when it hit the ground? Ignore air resistance. (1)

b. What was the ball's average speed during the 3 s? (0.5)

c. How high is the window? (0.5)

6. Answer the following questions about mass and weight:

a. How many newtons does a 5-kg backpack weigh on Earth? (0.5)

b. How many newtons does a 5-kg backpack weigh on the Moon? (0.5)

c. Aya's mass is 45 kg. What is her weight in newtons on Earth? (0.5)

d. What is Aya's mass on the moon? (0.5)

e. What is Aya's weight in newtons on the Moon? (0.5)