Answer Sheet

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1. An apple weighs 1 N. When held above your head, the net force on the apple is…

a. 9.8 N b. 1 N c. 0 N d. 0.1 N e. none of the above

2. A girl pulls on a 10 kg wagon with a constant force of 30 N. What is the wagon’s acceleration?

a. 10 m/s² b. 0.3 m/s² c. 300 m/s² d. 3.0 m/s² e. 30 m/s²

3. A rock is thrown vertically into the air. At the very top of its trajectory the net force on it is

a. its weight b. less than its weight c. more than its weight

4. Suppose a particle is accelerated through space by a constant 10 N force. Suddenly the particle encounters a second force of 10 N in a direction opposite that of the first force. The particle …

a. theoretically accelerates to speeds approaching the speed of light

b. gradually decelerates to a halt

c. is brought to a rapid halt

d. continues at the speed it had when it encountered the second force

e. none of the above

5. A tennis ball and a solid steel ball the same volume are dropped at the same time. Which ball has the greater force acting on it?

a. the steel ball b. both have the same force c. the tennis ball

6. A cart accelerating at 5 m/s/s is being moved by a net force of 100 N. If the net force increases to 200 N, what will the cart’s acceleration be?

a. 5 m/s/s b. 10 m/s/s c. 15 m/s/s d. 20 m/s/s

7. Which equation does not describe Newton’s second law of motion?

a. a = m/f b. a = f/m c. m = f/a d. f = ma

8. How much force does a 30,000 kg rocket develop to accelerate 2 m/s/s?

a. 15,000 N b. 30,000 N c. 45,000 N d. 60,000 N

9. An object has no acceleration. Which statement makes the least sense?

a. no net force is acting on the object

b. no forces are exerted on the object

c. the object may not be moving or it may be moving at a constant velocity

10. A tennis ball and a lead ball of the same diameter are dropped from the top of a building. Air resistance is a factor. Which statement is true?

a. according to Newton, the balls will hit the ground at the same time

b. air resistance causes the lead ball to drop faster than it normally would

c. the lead ball will hit first because it is more massive

d. the tennis ball will hit first because it cuts through the air better than the lead ball