Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Cp physics - Chapter 4 Newton's Laws of Motion Web Review

Please do not write on my tests

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. A 7.0-kg bowling ball experiences a net force of 5.0 N. What will be its acceleration?
a. 35 m/s^2
b. 7.0 m/s^2
c. 5.0 m/s^2
d. 0.71 m/s^2
e. 0.52 m/s^2

____ 2. An astronaut applies a force of 500 N to an asteroid, and it accelerates at 7.00 m/s^2. What is the asteroid's mass?
a. 71 kg
b. 135 kg
c. 441 kg
d. 3 500 kg
e. 3.600 kg

____ 3. Two ropes are attached to a 40-kg object. The first rope applies a force of 25 N and the second, 40 N. If the two ropes are perpendicular to each other, what is the resultant acceleration of the object?
a. 1.2 m/s^2
b. 3.0 m/s^2
c. 5.0 m/ s^2
d. 25 m/s^2
e. 47 m/s^2

____ 4. Two forces act on a 6.00-kg object. One of the forces is 10.0 N. If the object accelerates at 2.00 m/s^2, what is the greatest possible magnitude of the other force?
a. 1.0 N
b. 2.0 N
c. 22.0 N
d. 34.0 N
e. 41.0 N

____ 5. The acceleration due to gravity on the Moon's surface is one-sixth that on Earth. An astronaut's life support backpack weighs 300 lbs on Earth. What does it weigh on the Moon?
a. 1 800 lb
b. 300 lb
c. 135 lb
d. 50 lb
e. 40 lb

____ 6. The acceleration due to gravity on the Moon's surface is one-sixth that on Earth. What net force would be required to accelerate a 20-kg object at 6.0 m/s^2 on the moon?
   a. 1.3 N
   b. 20 N
   c. 33 N
   d. 120 N
   e. 130 N

____ 7. If we know that a nonzero net force is acting on an object, which of the following must we assume regarding the object's condition? The object is:
   a. at rest.
   b. moving with a constant velocity.
   c. being accelerated.
   d. losing mass.
   e. both a and b are correct.

____ 8. A 2 000-kg sailboat experiences an eastward force of 3 000 N by the ocean tide and a wind force against its sails with magnitude of 6 000 N directed toward the northwest (45° N of W). What is the magnitude of the resultant acceleration?
   a. 2.2 m/s^2
   b. 2.1 m/s^2
   c. 1.5 m/s^2
   d. 3.0 m/s^2
   e. 1.2 m/s^2

____ 9. A 2 000-kg sailboat experiences an eastward force of 3 000 N by the ocean tide and a wind force against its sails with magnitude of 6 000 N directed toward the northwest (45° N of W). What is the direction of the resultant acceleration?
   a. 60° N of E
   b. 30° N of W
   c. 30° N of E
   d. 74° N of W
   e. 60° N of W

____ 10. A cart of weight 20 N is accelerated across a level surface at 0.15 m/s^2. What net force acts on the wagon? (g = 9.8 m/s^2)
   a. 0.92 N
   b. 0.31 N
   c. 3.0 N
   d. 4.5 N
   e. 5.2 N

____ 11. A rock is rolled in the sand. It starts at 5.0 m/s, moves in a straight line for a distance of 3.0 m, and then stops. What is the magnitude of the average acceleration?
   a. 1.8 m/s^2
   b. 4.2 m/s^2
   c. 5.4 m/s^2
   d. 6.2 m/s^2
   e. 7.1 m/s^2

____ 12. Rita accelerates a 0.40-kg ball from rest to 9.0 m/s during the 0.15 s in which her foot is in contact with the ball. What average force does she apply to the ball during the kick?
a. 48 N
b. 72 N
c. 24 N
d. 60 N
e. 76 N

____ 13. A 70.0-kg man jumps 1.00 m down onto a concrete walkway. His downward motion stops in 0.0200 seconds. If he forgets to bend his knees, what force is transmitted to his leg bones?
a. 15 500 N
b. 7 010 N
c. 4 900 N
d. 3 500 N
e. 2.600 N

____ 14. The accelerating force of the wind on a small 200-kg sailboat is 707 N northeast. If the drag of the keel is 500 N acting west, what is the acceleration of the boat?
a. 1.5 m/s^2 due east
b. 2.5 m/s^2 due north
c. 3.0 m/s^2 northeast
d. 2.0 m/s^2 north by northwest
e. 1.5 m/s^2 due west

____ 15. A barefoot field-goal kicker imparts a speed of 30 m/s to a football at rest. If the football has a mass of 0.50 kg and time of contact with the football is 0.025 s, what is the force exerted on the foot?
a. 190 N
b. 380 N
c. 600 N
d. 900 N
e. 950 n

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Answer Section

MULTIPLE CHOICE

1. D
2. A
3. A
4. C
5. D
6. D
7. C
8. A
9. D
10. B
11. B
12. C
13. A
14. B
15. C