

Chapter 4

CHAPTER REVIEW

● Acceleration and Momentum

Part A. Vocabulary Review

In the space at the left, write the term from the word list that correctly completes each statement.

Newton's second law of motion
terminal velocity
projectile
air resistance

Newton's third law of motion
centripetal acceleration
momentum
centripetal force

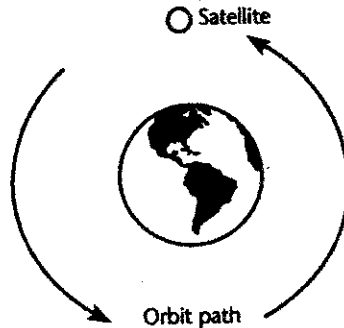
conservation of momentum
isometric exercises

- _____ 1. The phrase "to every action there is an equal and opposite reaction" is _____.
- _____ 2. The largest velocity reached by a falling object is its _____.
- _____ 3. A ball thrown across a football field is an example of a(n) _____.
- _____ 4. When an object moves in a circle, _____ acts to accelerate the object toward the center of that circle.
- _____ 5. When a car travels around a curve in the road, _____ helps to keep the car traveling in a curved path.
- _____ 6. The force exerted by air on a moving object is called _____.
- _____ 7. A net force acting on an object causes the object to accelerate in the direction of the force; this is _____.
- _____ 8. A property of a moving object resulting from its mass and velocity is _____.
- _____ 9. According to the _____, when a bowling ball strikes the pins, the momentum lost by the bowling ball is equal to the momentum gained by the pins.
- _____ 10. Muscles pushing against muscles is the goal of _____.

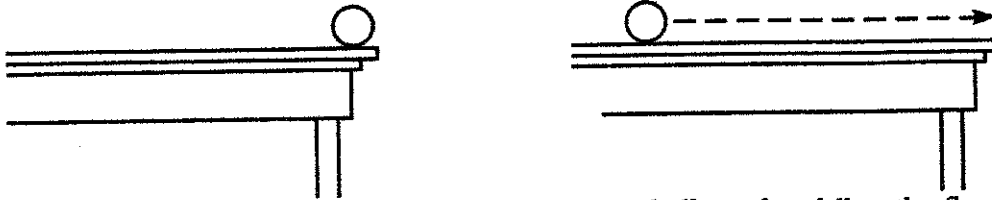
Chapter 4 Review (continued)

Part B. Concept Review

1. In the diagram below, a satellite is shown orbiting Earth. Add three arrows to the diagram to indicate the effects of a. inertia, b. gravity, and c. the path you predict results from the effects of inertia and gravity. Label the arrows a, b, and c.



2. Complete the diagrams below by indicating the path of the ball in each situation.



- a. The ball is placed on the edge of a table and allowed to fall to the floor.
- b. The ball is rolled rapidly across the table and falls onto the floor.
3. The balls in the figure above have the same mass. If the balls are dropped from the table at the same time, which ball will hit the floor first?
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4. If a 2-kg ball is thrown through the air at 20 m/s, what is the momentum of the ball?
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5. Why would a flat sheet of paper and a wad of paper with the same mass not fall through the air at the same rate?
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6. When is something weightless?
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7. Why might exposing astronauts to weightlessness be harmful?
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8. What are two ways that astronauts on the space shuttle combat the effects of weightlessness?
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