

Name: \_\_\_\_\_

1. A 75-kilogram bicyclist coasts down a hill at a constant speed of 12 meters per second. What is the kinetic energy of the bicyclist?
  - A.  $4.5 \times 10^2$  J
  - B.  $9.0 \times 10^2$  J
  - C.  $5.4 \times 10^3$  J
  - D.  $1.1 \times 10^4$  J
2. If the speed of a moving object is doubled, the kinetic energy of the object is
  - A. halved
  - B. doubled
  - C. unchanged
  - D. quadrupled
3. A shopping cart slows as it moves along a level floor. Which statement describes the energies of the cart?
  - A. The kinetic energy increases and the gravitational potential energy remains the same.
  - B. The kinetic energy increases and the gravitational potential energy decreases.
  - C. The kinetic energy decreases and the gravitational potential energy remains the same.
  - D. The kinetic energy decreases and the gravitational potential energy increases.
4. The gravitational potential energy, with respect to Earth, that is possessed by an object is dependent on the object's:
  - A. acceleration
  - B. momentum
  - C. position
  - D. speed
5. A child, starting from rest at the top of a playground slide, reaches a speed of 7.0 meters per second at the bottom of the slide. What is the vertical height of the slide? [Neglect friction.]
  - A. 0.71 m
  - B. 1.4 m
  - C. 2.5 m
  - D. 3.5 m
6. While riding a chairlift, a 55-kilogram skier is raised a vertical distance of 370 meters. What is the total change in the skier's gravitational potential energy?
  - A.  $5.4 \times 10^1$  J
  - B.  $5.4 \times 10^2$  J
  - C.  $2.0 \times 10^4$  J
  - D.  $2.0 \times 10^5$  J
7. As a ball falls freely toward the ground, its total mechanical energy:
  - A. decreases
  - B. increases
  - C. remains the same
8. A 6.8-kilogram block is sliding down a horizontal, frictionless surface at a constant speed of 6.0 meters per second. The kinetic energy of the block is approximately
  - A. 20. J
  - B. 41 J
  - C. 120 J
  - D. 240 J