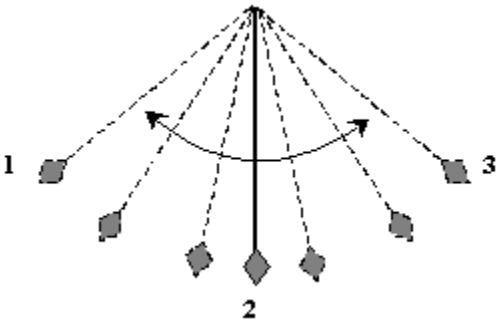
Energy Quiz 3

1. As an object falls, the sum of its kinetic and potential energy remains constant. This sum of the potential and kinetic energy of an object is the _____ energy of the object.

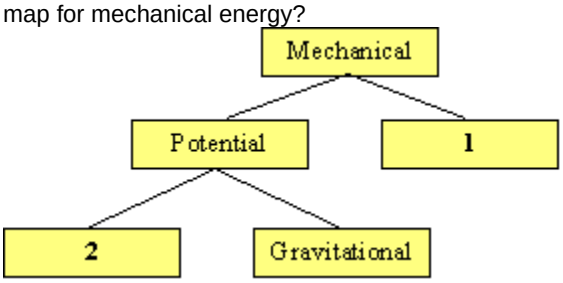
- A. chemical
- B. mechanical
- C. momentum
- D. non-mechanical

2. A swinging pendulum is represented in the diagram. Assume that no friction exists at the point that supports the pendulum. At the numbered points in the diagram, the mechanical energy possessed by the pendulum is



- A. the same at all three points.
- B. greatest at point 1.
- C. greatest at point 2.
- D. greatest at points 1 and 3.

3. Which of the following choices indicates the words that should fill in the numbered spaces in the concept map for mechanical energy?



- A. 1 is kinetic, 2 is thermal
- B. 1 is elastic, 2 is kinetic
- C. 1 is kinetic, 2 is elastic
- D. 1 is non-mechanical, 2 is elastic

4. Which of the following objects does *not* possess a form of mechanical energy?

- A. a car speeding along a road
- B. a skydiver as he falls through the air
- C. the glowing filament of a light bulb
- D. a glass of water sitting on a table

5. Suppose that a ball is launched into the air by a pitching machine. How far above the launch point will the ball go if it has an initial vertical speed of 37.0 m/s?

- A. 69.8 m
- B. 1.89 m
- C. 685 m
- D. 1.40×10^2 m

6. Suppose that roller coaster cars are pulled by a chain to the top of a hill that is 50 m high and then released. The cars can never go over another 50 m hill (unless they are pulled) because

- A. some mechanical energy is changed to non-mechanical energy.
- B. momentum is lost as the cars go downhill.
- C. kinetic energy changes back to potential energy as the cars go up the hill.
- D. some energy is completely lost.

7. In which of the following situations is mechanical energy conserved?

- A. a croquet ball rolling across grass
- B. an air hockey puck moving across the frictionless playing field
- C. a beach ball rolling across a sandy beach
- D. a car skidding on wet pavement

8. The energy possessed by an object in motion is _____ energy.

- A. moving
- B. potential
- C. kinetic
- D. velocity

9. A rock with a mass of 0.50 kg is moving at a velocity of 10.0 m/s. What is the kinetic energy of the rock?

- A. 5.0 J
- B. 25 J
- C. 20 J
- D. 50 J

10. Which of the following examples is *not* correctly paired with the type or types of energy involved?

- A. a bowling ball rolling down the alley, kinetic energy
- B. a steak cooking on a grill, non-mechanical energy
- C. a performer walking on a tightrope, gravitational potential energy
- D. a balloon inflating with air, elastic potential energy