PHYSICS
INMOTION >>>
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Unit 4E
Kinetic Energy and Gravitational Potential Energy
Practice Problems

Name:

Date:

Work each of the following problems. SHOW ALL WORK.

1. What is the kinetic energy of a 3 kg object moving at 4 m/s?

2. A 4 kg object possesses 18 J of kinetic energy. What is its velocity?

3. An object has 90,000 J of kinetic energy and is moving at 12 m/s. What is the object's mass?

4. A 40 kg box is placed on a 2 m tall shelf.

   a. What is the gravitational potential energy of the box?

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b. If the box falls off the shelf, what is its kinetic energy as it strikes the ground?

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c. What is the velocity of the box immediately before it strikes the ground?

5. A 1.5 kg ball is thrown upward with a velocity of 6 m/s.

a. What is the kinetic energy of the ball as it is thrown upward?

b. What is the gravitational potential energy of the ball when it reaches its highest point?

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c. To what height above the thrower's hand will the ball rise?

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6. A 2 kg watermelon is dropped from a 4 m tall roof. How fast will the watermelon be moving as it strikes the ground below?

7. To what height will a 250 g soccer ball rise if it is kicked directly upward at 8 m/s?