

Name \_\_\_\_\_

Date \_\_\_\_\_

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## Mechanical Energy Practice

$$PE = mgh \quad KE = \frac{1}{2} mv^2 \quad TE = KE + PE$$

1) A 25 kg object is held at 3 m above the ground. What is its potential energy?

2) A 100 kg object has a potential energy of 14,700 J. How high off the ground is it?

3) An object has a potential energy of 1000 J. The object is 5 m off the ground. What is its mass?

4) A 20 kg mass is moving at 10 m/s. What is its kinetic energy?

Answers: 1) 735 J   2) 15 m   3) 20.4 kg   4) 1000 J

5) A 25 kg mass has a kinetic energy of 1250 J. What is its speed?

6) An object moving at 50 m/s has a kinetic energy of 5000 J. What is its mass?

7) A 70 kg snowboarder is at the top of a 100 m mountain. Before the snowboarder begins to move,  
a) what is their potential energy?

b) What is their kinetic energy?

c) What is their total energy?

Answers: 5) 10 m/s 6) 4 kg 7a) 68600 J b) 0 J c) 68600 J

- 8) When the snowboarder has reached a point where they are 40 m vertically above the ground,
- a) what is their potential energy?
  - b) What is their total energy?
  - c) What is their kinetic energy?
  - d) What is their speed?

Answers: 8a) 27440 J b) 68600 J c) 41160 J d) 34.3 m/s

9) When the snowboarder has reached the ground,

a) what is their potential energy?

b) What is their total energy?

c) What is their kinetic energy?

d) What is their speed?

Answers: 9a) 0 J b) 68600 J c) 68600 J d) 44.27 m/s