

Concept-Development Practice Page

8-2

Conservation of Energy

1. Fill in the blanks for the six systems shown.

$PE = 30\text{ J}$
 $PE = \underline{\hspace{2cm}}$
 $PE = \underline{\hspace{2cm}}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 15000\text{ J}$
 $KE = 0$
 $PE = 11250\text{ J}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 7500\text{ J}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 3750\text{ J}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 0\text{ J}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 0$
 $KE = 50\text{ J}$

$v = 30\text{ km/h}$
 $KE = 10^6\text{ J}$
 $v = 60\text{ km/h}$
 $KE = \underline{\hspace{2cm}}$
 $v = 90\text{ km/h}$
 $KE = \underline{\hspace{2cm}}$

$PE = 10^4\text{ J}$
 $WORK\ DONE = \underline{\hspace{2cm}}$

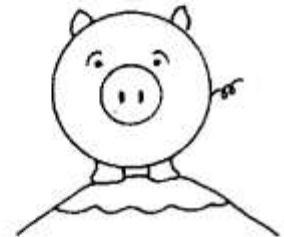
$PE = 10\text{ J}$
 $KE = 0$
 $PE = 2\text{ J}$
 $KE = \underline{\hspace{2cm}}$
 $PE = 0$
 $KE = \underline{\hspace{2cm}}$
 $PE = \underline{\hspace{2cm}}$
 $KE = \underline{\hspace{2cm}}$

- Exercise 8:** A Mexican jumping bean jumps with the aid of a small worm that lives inside the bean. a) If a bean of mass 2.0 g jumps 1.0 cm from your hand into the air, how much potential energy has it gained in reaching its highest point.
b) What is its speed as the bean lands back in the palm of your hand?

Answer: a. _____

Answer: b. _____

- Exercise 9:** A 500.-kg pig is standing at the top of a muddy hill on a rainy day. The hill is 100.0 m long with a vertical drop of 30.0 m. The pig slips and begins to slide down the hill. What is the pig's speed at the bottom of the hill? Use the law of conservation of energy.



Answer: _____

- Exercise 10:** While on the moon, the Apollo astronauts enjoyed the effects of a gravity much smaller than that on Earth. If Neil Armstrong jumped up on the moon with an initial speed of 1.51 m/s to a height of 0.700 m, what amount of gravitational acceleration did he experience?

Answer: _____