Name _____ Date _____

CONCEPTUAL Physics PRACTICE PAGE

Chapter 6 Energy
Work and Energy

1. How much work (energy) is needed to lift an object that weighs 200 N to a height of 4 m?

_____

2. How much power is needed to lift the 200-N object to a height of 4 m in 4 s?

_____

3. What is the power output of an engine that does 60 000 J of work in 10 s?

_____

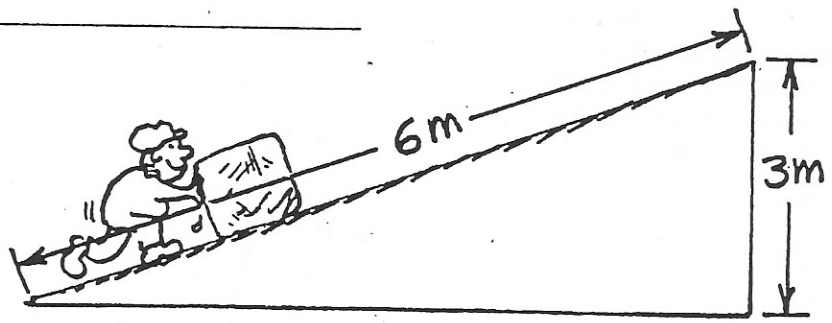
4. The block of ice weighs 500 newtons.

   a. How much force is needed to push it up the incline (neglect friction)?

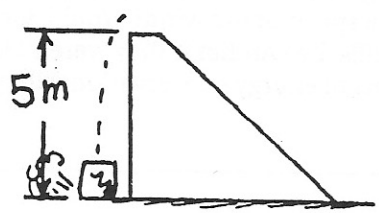
   _____

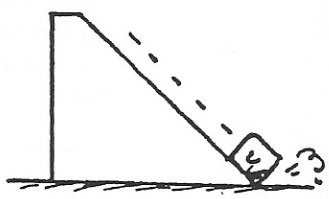
   b. How much work is required to push it up the incline compared with lifting the block vertically 3 m?

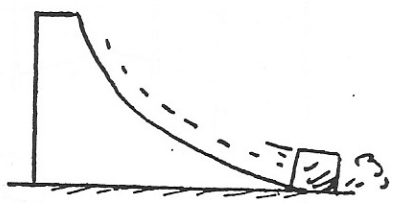
   _____



5. All the ramps are 5 m high. We know that the KE of the block at the bottom of the ramp will be equal to the loss of PE (conservation of energy). Find the speed of the block at ground level in each case. [Hint: Do you recall from earlier chapters how long it takes something to fall a vertical distance of 5 m from a positon of rest (assume $g = 10\ m/s^2$)? And how much speed a falling object acquires in this time? This gives you the answer to Case 1. Discuss with your classmates how energy conservation gives you the answers to Cases 2 and 3.]







Case 1: Speed = _____ m/s

Case 2: Speed = _____ m/s

Case 3: Speed = _____ m/s.

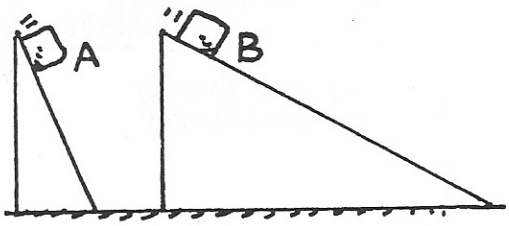
WS4

6. Which block gets to the bottom of the incline first? Assume no friction. (Be careful!) Explain your answer.

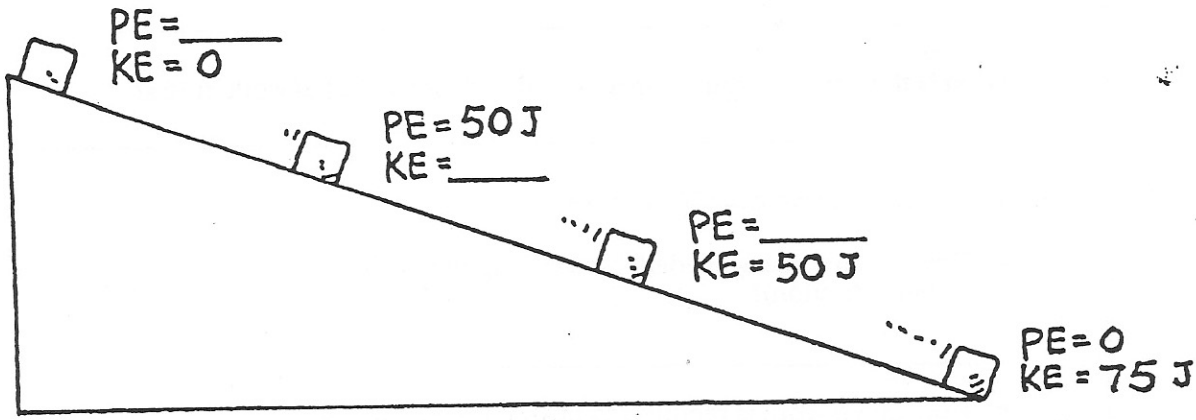
_____

_____

_____



7. The KE and PE of a block freely sliding down a ramp are shown in only one place in the sketch. Fill in the missing values.



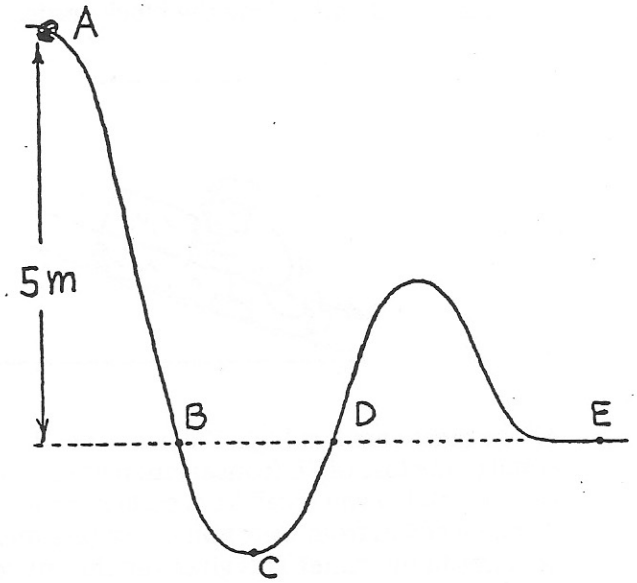
8. A big metal bead slides due to gravity along an upright friction-free wire. It starts from rest at the top of the wire as shown in the sketch. How fast is it traveling as it passes

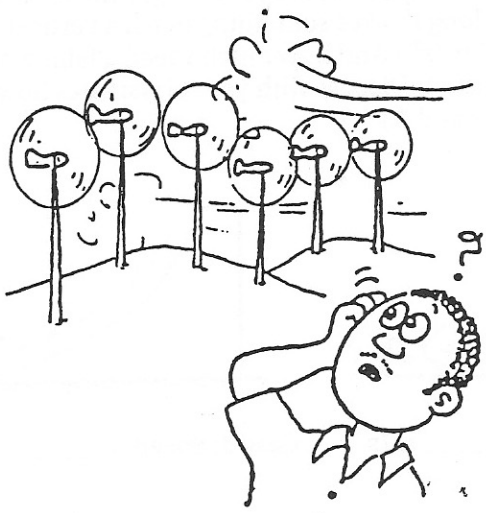
Point B?_____

Point D?_____

Point E?_____

At what point does it have the maximum speed?_____





9. Rows of wind-powered generators are used in various windy locations to generate electric power. Does the power generated affect the speed of the wind? Would locations behind the 'windmills' be windier if they weren't there? Discuss this in terms of energy conservation with your classmates.

_____

_____

_____

Hewitt Drew it!

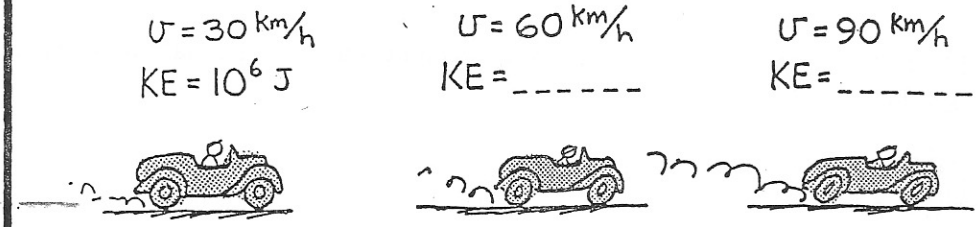
Name _____ Date _____

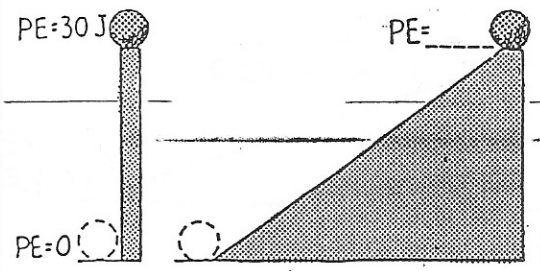
CONCEPTUAL Physics PRACTICE PAGE

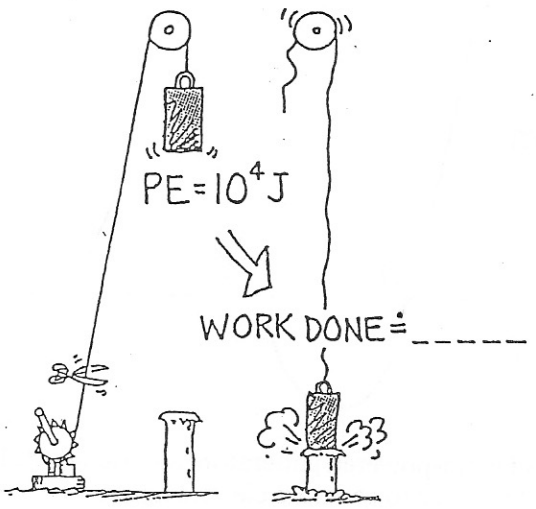
Chapter 6 Energy

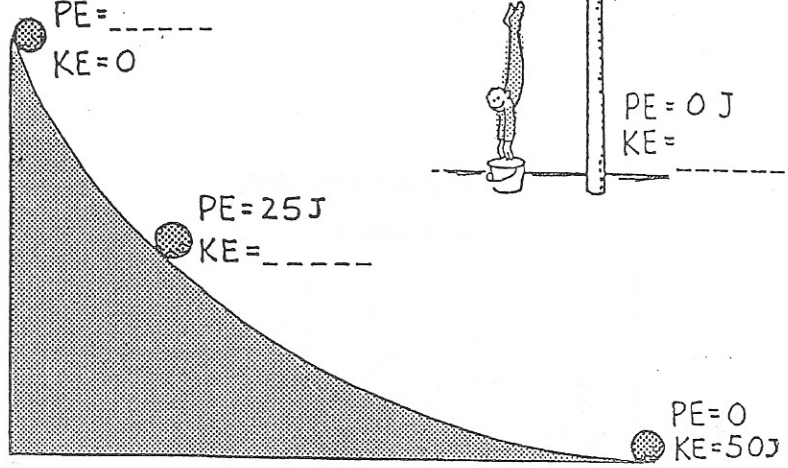
Conservation of Energy

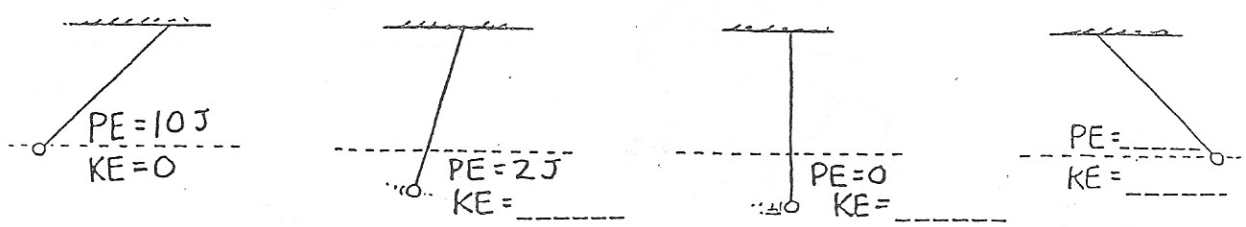
1. Fill in the blanks for the six systems shown.

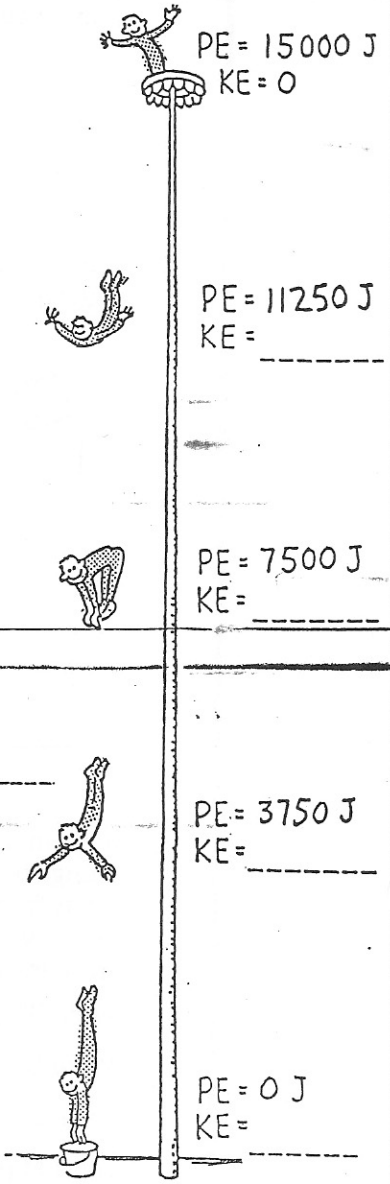












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