

CONCEPTUAL **Physical Science** PRACTICE SHEET

Chapter 3: Momentum and Energy *Work and Energy*

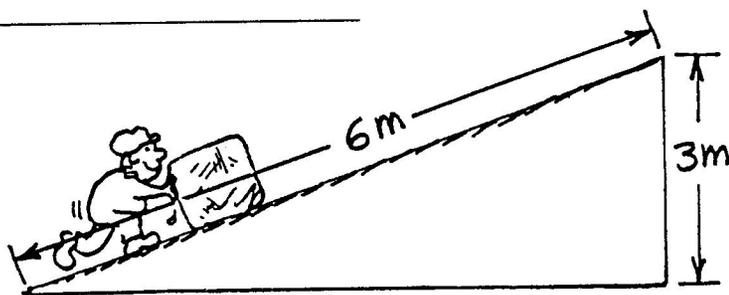
- How much work (energy) is needed to lift an object that weighs 200 N to a height of 4 m?

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

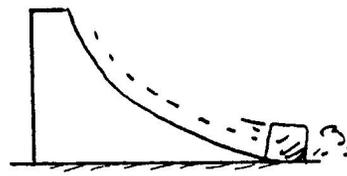
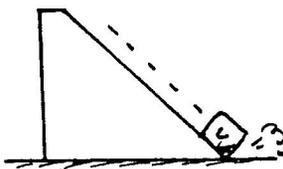
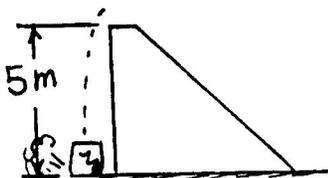
- What is the power output of an engine that does 60 000 J of work in 10 s?

- The block of ice weighs 500 newtons.
 - Neglecting friction, how much force is needed to push it up the incline?

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



- 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 position of rest (assume $g = 10 \text{ m/s}^2$)? 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.