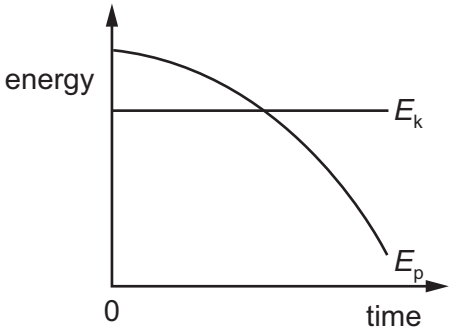
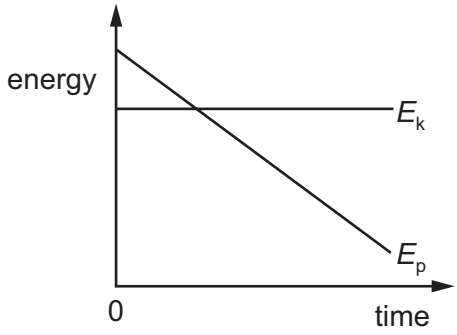
16 A steel ball is falling at constant speed in oil.

Which graph shows the variation with time of the gravitational potential energy E_p and the kinetic energy E_k of the ball?

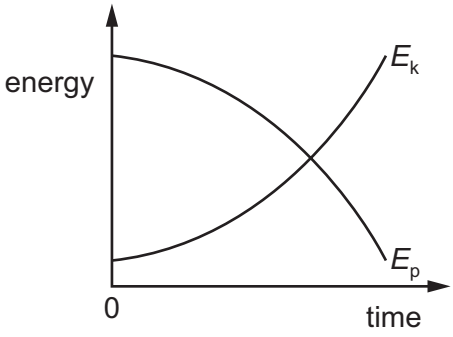
A



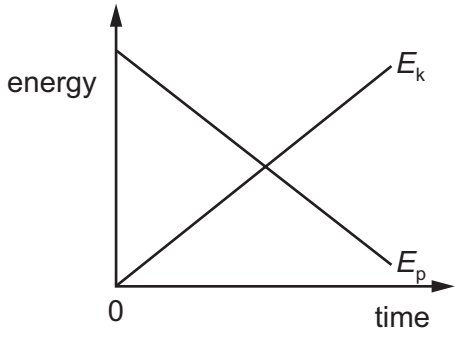
B



C



D

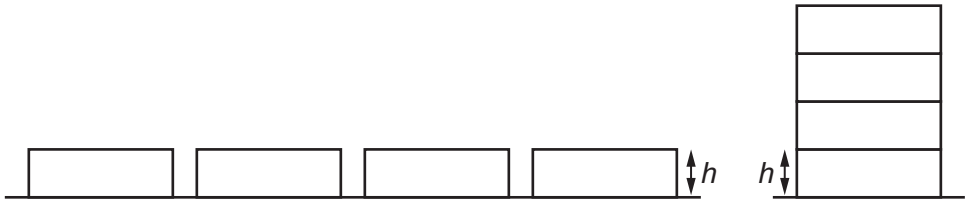


17 The maximum useful output power of a car travelling on a horizontal road is P. The total resistive force acting on the car is kv^2, where v is the speed of the car and k is a constant.

Which equation is correct when the car is travelling at maximum speed?

A $v^3 = \frac{P}{k}$ **B** $v^2 = \frac{P}{k}$ **C** $v = \left(\frac{P}{k}\right)^2$ **D** $v = \left(\frac{P}{k}\right)^3$

18 Initially, four identical uniform blocks, each of mass m and thickness h, are spread on a table.



The acceleration of free fall is g.

How much work is done on the blocks in stacking them on top of one another?

A $3mgh$ **B** $6mgh$ **C** $8mgh$ **D** $10mgh$