

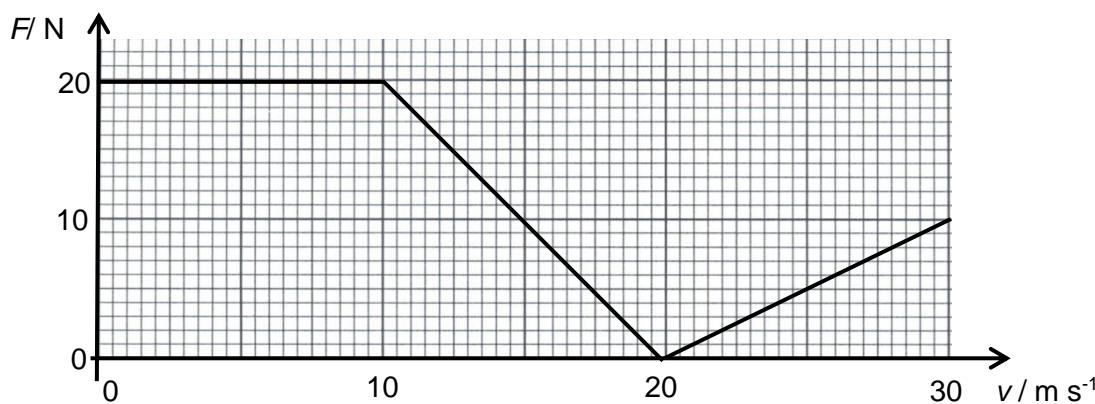
**Section A**

Answer **all** the questions in the spaces provided.

- 1 (a) Derive the equation  $E_p = mgh$  for the potential energy change,  $E_p$ , of a mass  $m$  moved through a vertical distance  $h$  near the Earth's surface.

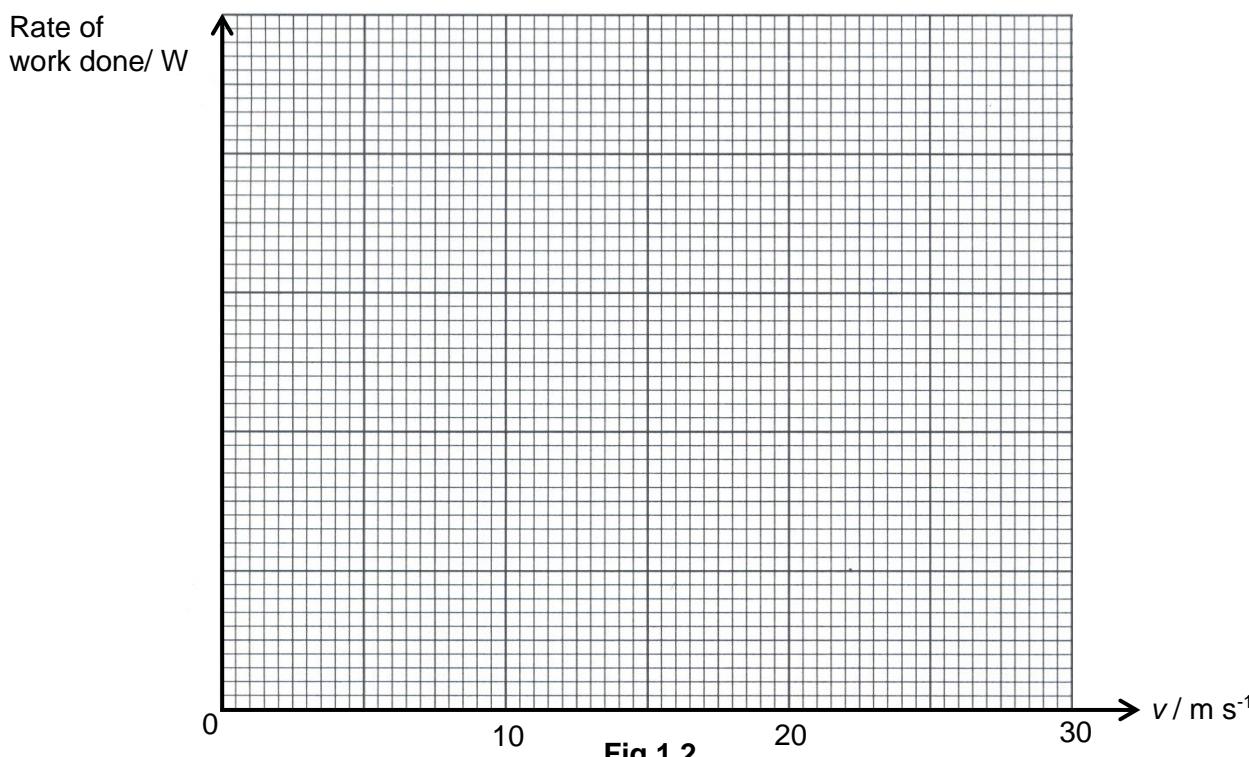
[2]

- (b) Fig. 1.1 shows the variation with velocity  $v$  of the force  $F$  applied to an object.  $F$  and  $v$  are in the same direction.



**Fig. 1.1**

On Fig. 1.2, draw a graph showing the variation with  $v$  of the rate of work done.



**Fig 1.2**

[3]

[Total: 5]