

- 6 A particle of mass  $m$  kg falls vertically under gravity, from rest. At time  $t$  s,  $P$  has fallen  $x$  m and has velocity  $v$  ms<sup>-1</sup>. The only forces acting on  $P$  are its weight and a resistance of magnitude  $kmgv$  N, where  $k$  is a constant.

**(a)** Find an expression for  $v$  in terms of  $t$ ,  $g$  and  $k$ .

[5]

[illegible]

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