2 A particle P of mass m kg moves along a horizontal straight line with acceleration a ms^{-2} given by

$$a = \frac{v(1 - 2t^2)}{t},$$

where v ms^{-1} is the velocity of P at time t s.

(a) Find an expression for v in terms of t and an arbitrary constant. [3]

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(b) Given that $a = 5$ when $t = 1$, find an expression, in terms of m and t, for the horizontal force acting on P at time t. [3]

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