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2. A particle, P, of mass 0.5 kg is moving along the positive x-axis. At time t seconds, $t \geqslant 0$, P is x metres from the origin O and is moving away from O with velocity $v\,\text{m}\,\text{s}^{-1}$, where $v = \dfrac{1}{(4x + 3)}$

When $t = 0$, P is at O.

(a) Find the distance of P from O when $t = 2$

(5)

(b) Find the magnitude of the resultant force acting on P when $t = 2$

(5)

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Q2