

- 3 A particle  $P$  is moving in a horizontal straight line. Initially  $P$  is at the point  $O$  on the line and is moving with velocity  $25 \text{ m s}^{-1}$ . At time  $t \text{ s}$  after passing through  $O$ , the acceleration of  $P$  is  $\frac{4000}{(5t+4)^3} \text{ m s}^{-2}$  in the direction  $PO$ . The displacement of  $P$  from  $O$  at time  $t$  is  $x \text{ m}$ .

Find an expression for  $x$  in terms of  $t$ .

[5]

This image shows a full page of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page, typical of notebook or legal stationery. There are no margins, text, or other markings on the page.