A particle P moving in a straight line has displacement x m from a fixed point O on the line and velocity $v\,\mathrm{m\,s}^{-1}$ at time t s. The acceleration of P, in $\mathrm{m\,s}^{-2}$, is given by $6v\sqrt{v+9}$. When $t = 0$, $x = 2$ and $v = 72$.

(a) Find an expression for v in terms of x. [4]

(b) Find an expression for x in terms of t. [5]