A particle P of mass 2 kg moving on a horizontal straight line has displacement x m from a fixed point O on the line and velocity v m s<sup>-1</sup> at time ts. The only horizontal force acting on P is a variable force FN which can be expressed as a function of t. It is given that

DO NOT WRITE IN THIS MARGIN

$$\frac{v}{x} = \frac{3-t}{1+t}$$

and when t = 0, x = 5.

(a)	Find an expression for $x$ in terms of $t$ .	[4]
		•••••

DO NOT WRITE IN THIS MARGIN

* 000080000		

<b>(b)</b>	Find the magnitude of $F$ when $t = 3$ .

Find the magnitude of $F$ when $t = 3$ .	[3]
	••••••

9