3 **(a)** Define

(i) *velocity*,

.....

.....[1]

(ii) *acceleration*.

.....

.....[1]

(b) A car of mass 1500 kg travels along a straight horizontal road.
The variation with time *t* of the displacement *x* of the car is shown in Fig. 3.1.

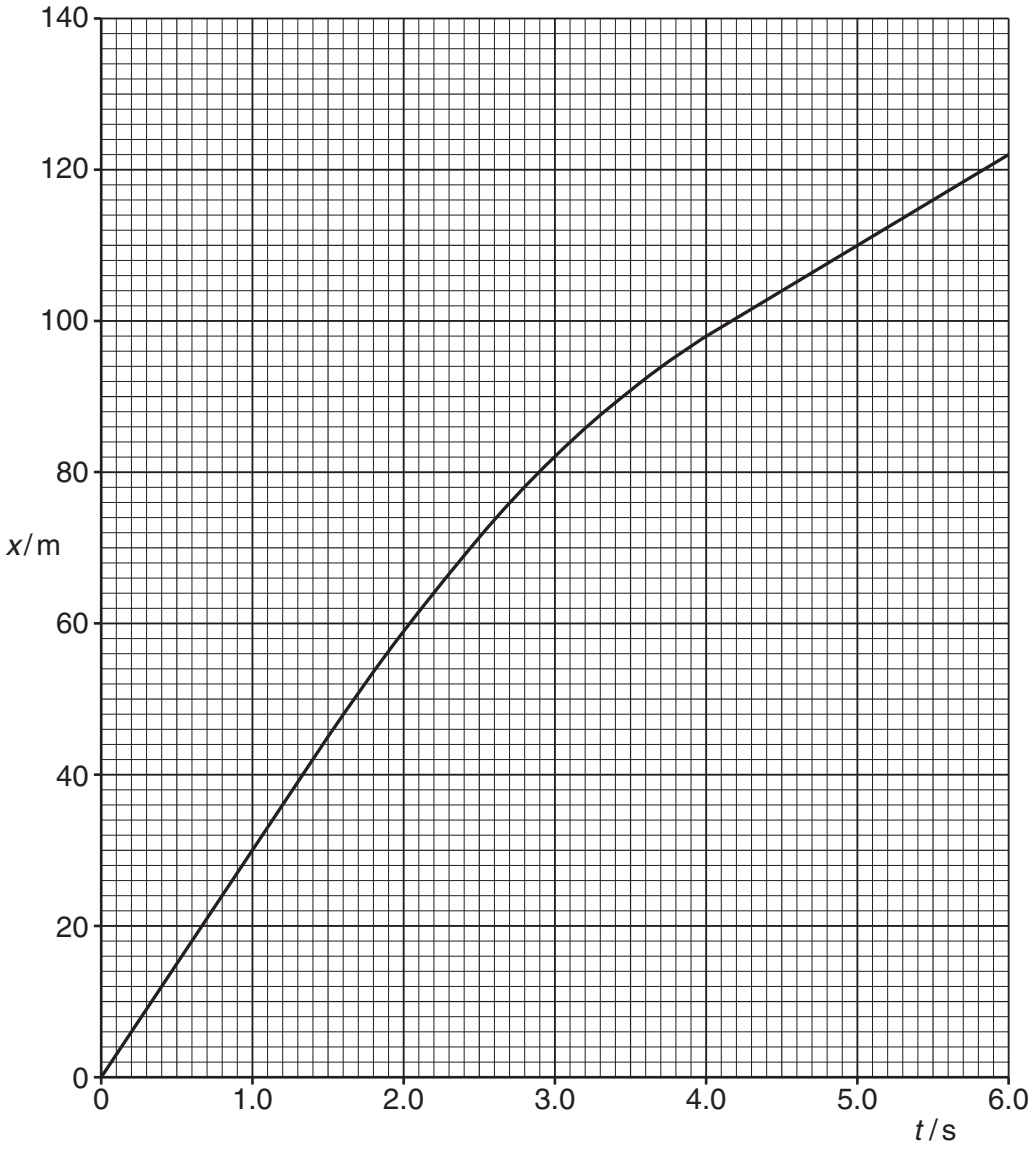

Fig. 3.1

(i) Use Fig. 3.1 to describe qualitatively the velocity of the car during the first six seconds of the motion shown.
Give reasons for your answers.

.....

.....

.....

.....

.....[3]

(ii) Calculate the average velocity during the time interval $t = 0$ to $t = 1.5\,s$.

average velocity = ... $m\,s^{-1}$ [1]

(iii) Show that the average acceleration between $t = 1.5\,s$ and $t = 4.0\,s$ is $-7.2\,m\,s^{-2}$.

[2]

(iv) Calculate the average force acting on the car between $t = 1.5\,s$ and $t = 4.0\,s$.

force = ... N [2]