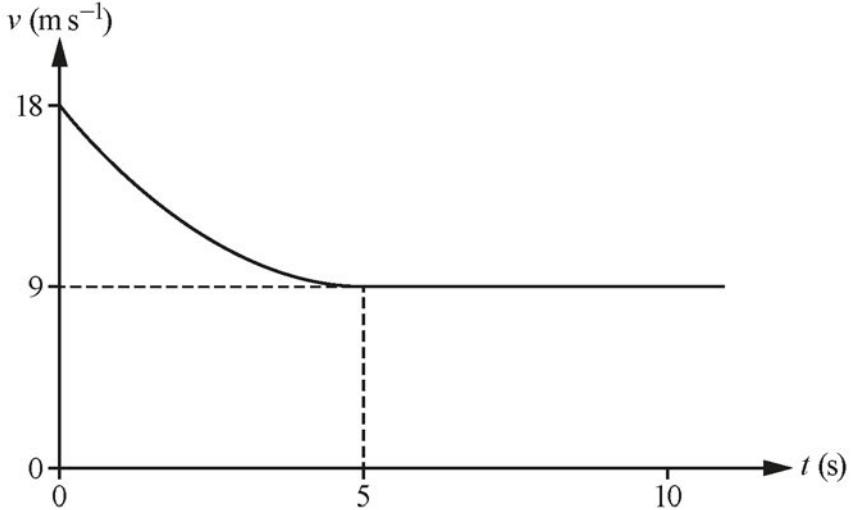
10



The diagram shows the velocity-time graph modelling the velocity of a car as it approaches, and drives through, a residential area.

The velocity of the car, v m s^{-1}, at time t seconds for the time interval $0 \leqslant t \leqslant 5$ is modelled by the equation $v = pt^2 + qt + r$, where p, q and r are constants.

It is given that the acceleration of the car is zero at $t = 5$ and the speed of the car then remains constant.

(a) Determine the values of p, q and r. **[5]**

(b) Calculate the distance travelled by the car from $t = 2$ to $t = 10$. **[3]**