

5 The position vector \mathbf{r} metres of a particle at time t seconds is given by

$$\mathbf{r} = (1 + 12t - 2t^2)\mathbf{i} + (t^2 - 6t)\mathbf{j}.$$

- (i)** Find an expression for the velocity of the particle at time t . **[2]**
- (ii)** Determine whether the particle is ever stationary. **[2]**