4. **In this question you must show all stages of your working.**
Solutions relying entirely on calculator technology are not acceptable.

A fixed point O lies on a straight line.
A particle P moves along the straight line.

At time t seconds, $t \geqslant 0$, the distance, s metres, of P from O is given by

$$s = 2t^3 - 12t^2 + 18t$$

(a) Find the **values** of t for which P is instantaneously at rest.

(4)

(b) Find the **total** distance travelled by P in the interval $0 \leqslant t \leqslant 4$

(3)

(c) Find the maximum speed of P in the interval $1 \leqslant t \leqslant 3$

(3)