1.

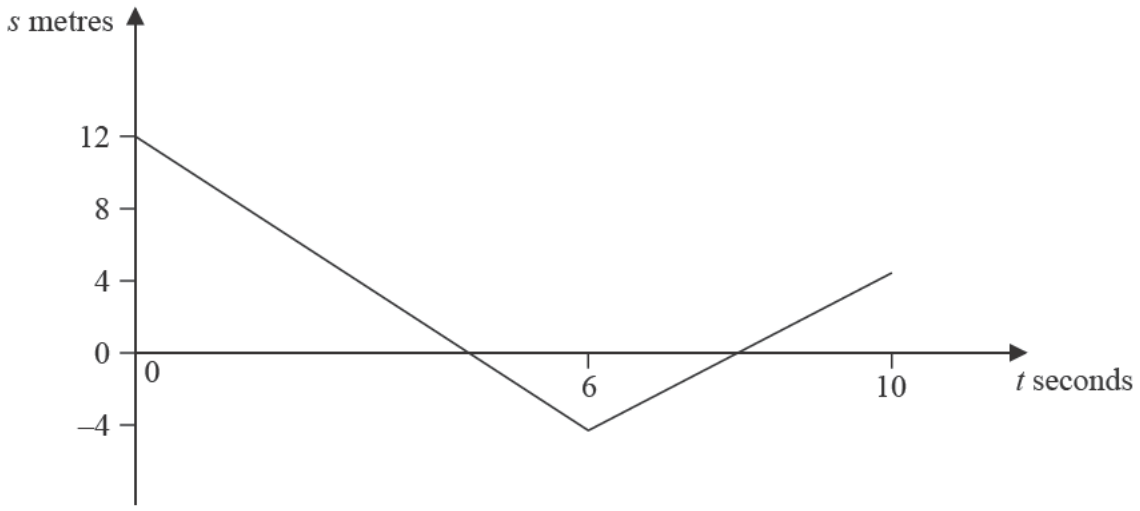

Figure 1

A toy car moves along a straight line.

The line contains the fixed point O

The toy car is modelled as a particle.

Figure 1 shows the **displacement-time** graph for a model of the motion of the toy car, where s metres is the displacement of the toy car from O at time t seconds.

Using the model,

(a) find the speed of the toy car in the interval $0 \leqslant t \leqslant 6$

(1)

(b) find the average speed of the toy car in the interval $0 \leqslant t \leqslant 10$

(2)

(c) sketch the **velocity-time** graph for the motion of the toy car in the interval $0 \leqslant t \leqslant 10$

(2)

(d) (i) Referring to your sketch, or otherwise, describe what happens to the motion of the toy car at the instant when $t = 6$

(ii) Explain why your answer to (i) represents a limitation of the model of the motion of the toy car at $t = 6$

(2)