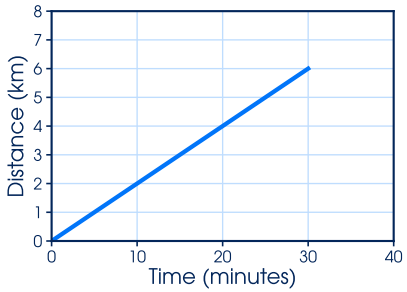
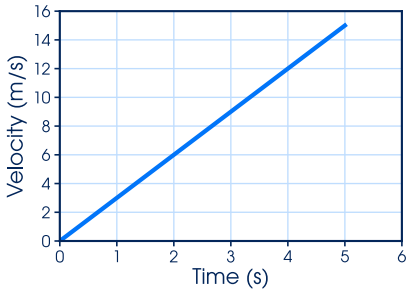
GCSE HIGHER · REVISION MAT 5

Gradients and areas under graphs

1 Find the speed in km/h.

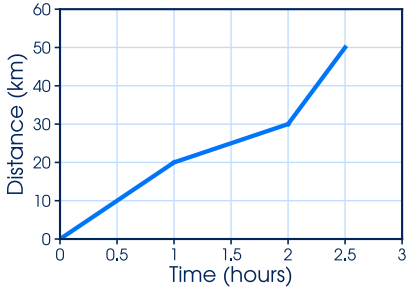


2 Find the acceleration.

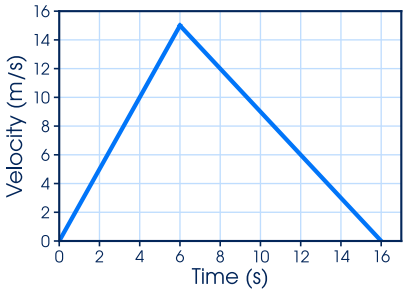


3 Which section shows the fastest speed?

Explain.



4 Find the total distance travelled.



5 $d = t^2$ gives the distance d m after t s.

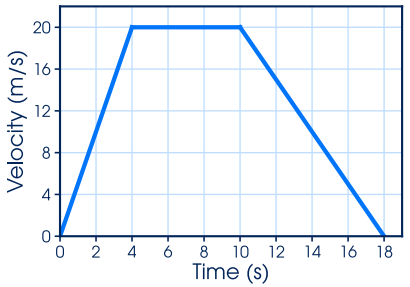
Show that the average speed between $t = 1$ and $t = 3$ is 4 m/s.

6 The table gives the velocity of a runner.

t (s)	0	2	4	6	8
v (m/s)	0	4	7	9	10

Estimate the distance run in 8 s.

7 Show that the deceleration in the last section is 2.5 m/s².



8 A car travelling at 30 m/s brakes uniformly.

It stops in 75 m.

Find the deceleration.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 5

Gradients and areas under graphs

1 6 km in 0.5 h

12 km/h

2 $\frac{15}{5}$

3 m/s²

3 Speeds: 20, 10 and 40 km/h

The last section: it has the steepest gradient.

4 $\frac{1}{2} \times 16 \times 15$

120 m

5 $\frac{9-1}{3-1}$

= 4 m/s

6 $2 \times (\frac{1}{2}(0 + 10) + 4 + 7 + 9)$

≈ 50 m

7 $\frac{20}{18-10}$

= 2.5 m/s²

8 $\frac{1}{2} \times t \times 30 = 75 \Rightarrow t = 5$ s

$\frac{30}{5}$ **= 6 m/s²**

Mr&Mrs MATHS