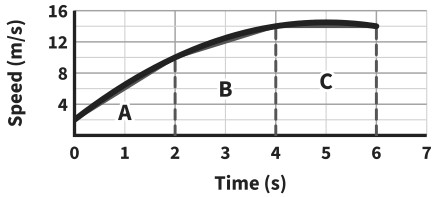
Speed-time graphs: area under a curve

1

Use 3 equal strips to estimate the distance travelled in the first 6 seconds.



width = 6 ÷ 3 = 2 s

heights 2, 10, 14, 14 m/s

A = ½(2 + 10) × 2 = 12

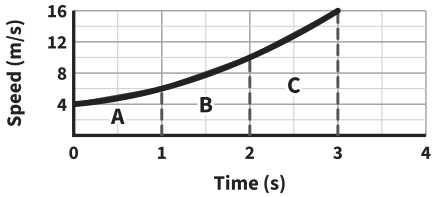
B =

C =

Distance ≈ _____ m

2

Use 3 equal strips to estimate the distance travelled in the first 3 seconds.



width = 3 ÷ 3 = 1 s

heights m/s

A =

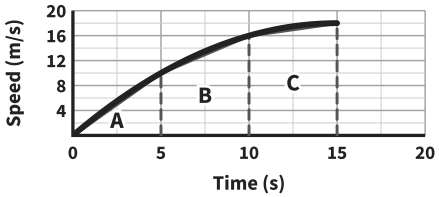
B =

C =

Distance ≈ _____ m

3

Use 3 equal strips to estimate the distance travelled in the first 15 seconds.



width = s

heights m/s

A =

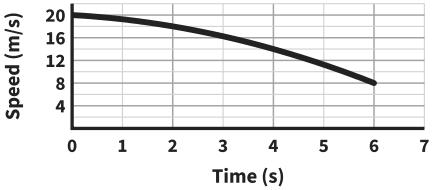
B =

C =

Distance ≈ _____ m

4

Draw 3 equal strips. Estimate the distance travelled in the first 6 seconds.



width = s

heights m/s

A =

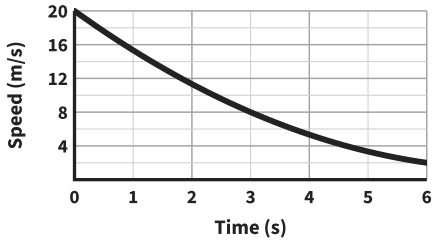
B =

C =

Distance ≈ _____ m

5

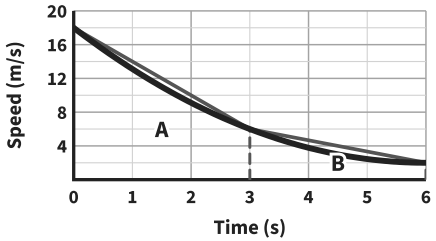
Use 2 strips to estimate the distance travelled in the first 6 seconds.
Is your estimate an underestimate or an overestimate?



Distance _____

6

Leo uses 2 strips and gets 48 m.
He says: "The speed goes down, so 48 m is an underestimate." Explain why Leo is wrong.



48 m is an _____

7

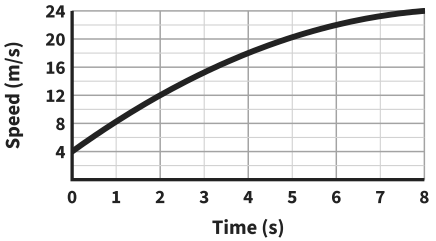
The table shows a scooter's speed every 2 seconds. Use it to estimate the distance travelled in 8 seconds.

Time (s)	0	2	4	6	8
Speed (m/s)	0	5	8	9	8

Distance ≈ _____ m

8

Mia uses 2 strips and Sam uses 4 strips to estimate the distance in the first 8 seconds. Work out both. Whose is closer to the real distance?

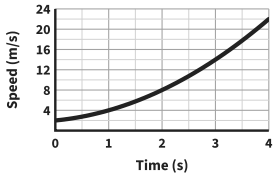


Closer _____

Speed-time graphs: area under a curve *further practice*

9

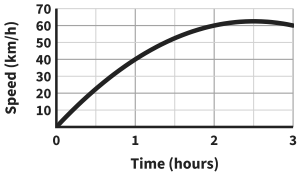
Use 4 strips to estimate the distance travelled in the first 4 seconds. Is it an underestimate or an overestimate?



Answer _____

10

The graph shows a coach's speed. Use 3 strips to estimate how far it travels in 3 hours. Give your answer in km.



Answer _____

11

The table shows a skater's speed. Using 3 strips, Ana estimates the distance as 65 m. Find v.

Time (s)	0	2	4	6
Speed (m/s)	3	v	13	16

Answer _____

12

Two runners start together. The table shows their speeds. Use 3 strips for each to estimate who runs further in 6 seconds, and by how much.

Time (s)	0	2	4	6
Jas (m/s)	0	6	8	9
Ola (m/s)	0	4	7	10

Answer _____

13

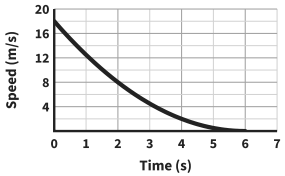
The table shows a drone's speed. Use 4 strips to estimate its average speed over the 20 seconds.

Time (s)	0	5	10	15	20
Speed (m/s)	4	10	14	16	16

Answer _____

14

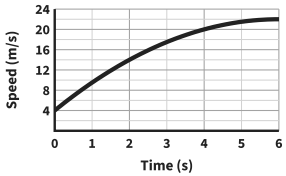
A car brakes and must stop within 40 m. Use 3 strips to estimate its stopping distance. Can you be sure it stops in time? Explain.



Answer _____

15

Nia splits the first 6 seconds into strips from 0 to 1 and 1 to 6. Explain why this is a poor choice. Then use 3 equal strips to estimate the distance.



Answer _____

16

A speed-time graph bends down. With 2 strips the estimate is 100 m, and with 4 strips it is 104 m. Could the real distance be 103 m? Explain.

Answer _____