

Kinematics

Syllabus tracker [Open it online](#)

Name: _____

Date: _____

Tick one circle for each statement — on screen (click) or with a pen. Then try the quick checks: write your answer in the box, check it against the answers at the end, and tick “right” when you got it.

Speed and units

Average speed and converting km/h to m/s.

	Don't know	Shaky	Got it
I can solve average speed problems.	☐	☐	☐
I can convert between km/h and m/s.	☐	☐	☐
I can find the average speed of a journey with stops.	☐	☐	☐

Distance–time graphs

Reading speed and stops from distance–time graphs.

	Don't know	Shaky	Got it
I can interpret a distance–time graph.	☐	☐	☐
I can find speed from the gradient of a distance–time graph.	☐	☐	☐

Speed–time graphs

Acceleration, deceleration and distance as the area under the graph.

	Don't know	Shaky	Got it
I can find acceleration from a speed–time graph.	☐	☐	☐
I can find the distance travelled from the area under a speed–time graph.	☐	☐	☐
I can recognise deceleration on a speed–time graph.	☐	☐	☐

Conversion and travel graphs

Reading conversion graphs and drawing graphs from data.

	Don't know	Shaky	Got it
I can use a conversion graph.	☐	☐	☐

Quick checks

One quick question per statement. Answer in the box, then check the answers at the end.

1. A car travels 150 km in 2 hours 30 minutes. What is its average speed in km/h?

Answer: _____ ☐ I got it right

2. Convert 72 km/h to m/s.

Answer: _____ ☐ I got it right

3. A cyclist rides 30 km in 1 hour, rests for 30 minutes, then rides 20 km in 1 hour. What is the average speed for the whole journey in km/h?

Answer: _____ ☐ I got it right

4. On a distance–time graph, a horizontal line means...

A the object is stationary **B** constant speed **C** constant acceleration **D** the object is returning

Answer: _____ ☐ I got it right

5. A distance–time graph is a straight line from (0 s, 0 m) to (40 s, 200 m). What is the speed in m/s?

Answer: _____ ☐ I got it right

6. A speed–time graph is a straight line from 4 m/s at $t = 0$ to 16 m/s at $t = 6$ s. What is the acceleration in m/s^2 ?

Answer: _____ ☐ I got it right

7. A car accelerates from rest to 20 m/s in 10 s, then travels at 20 m/s for 30 s. How far does it travel, in metres?

Answer: _____ ☐ I got it right

8. On a speed–time graph, a line sloping down means...

A deceleration **B** the object is moving backwards **C** constant speed **D** the object has stopped

Answer: _____ ☐ I got it right

9. A conversion graph is a straight line through (0, 0) and (10 miles, 16 km). How many km is 25 miles?

Answer: _____ ☐ I got it right

Answers

Try every question first, then check.

- | | |
|--------------------------------|--------------------|
| 1. 60 | 6. 2 |
| 2. 20 | 7. 700 |
| 3. 20 | 8. A: deceleration |
| 4. A: the object is stationary | 9. 40 |
| 5. 5 | |