Name:

A-Level Physics: **w23 12**

5 What is the definition of acceleration?

A the rate of change of displacement

B the rate of change of kinetic energy

C the rate of change of momentum

D the rate of change of velocity

A-Level Physics: **s24 12**

4 Which statement is **not** correct?

A Acceleration can be determined from the gradient of a velocity–time graph.

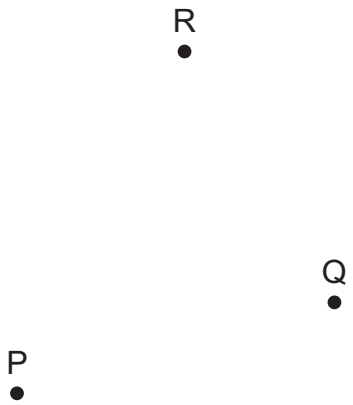
B Acceleration is the rate of change of velocity.

C Displacement can be determined from the area under a velocity–time graph.

D Velocity is the rate of change of distance.

A-Level Physics: **s23 11**

5 One object moves directly from P to R.



In a shorter time, a second object moves from P to Q to R.

Which statement about the two objects is correct for the journey from P to R?

A They have the same average speed.

B They have the same average velocity.

C They have the same displacement.

D They travel the same distance.

A-Level Physics: **s24 11**

8 An aircraft flies from London to Sydney in a time of 21 hours 40 minutes.

The distance travelled is 17 000 km.

What is the average speed of the aircraft?

A $2.2\,\text{m}\,\text{s}^{-1}$

B $2.2 \times 10^{7}\,\mu\text{m}\,\text{s}^{-1}$

C $2.2 \times 10^{11}\,\text{nm}\,\text{s}^{-1}$

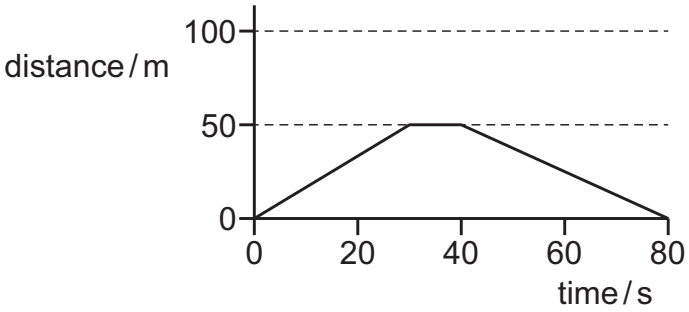
D $2.2 \times 10^{6}\,\text{mm}\,\text{s}^{-1}$

A-Level Physics: **w23 13**

5 A student walks at a constant speed for a distance of 50 m in a time of 40 s. The student rests for a time of 10 s and then walks back to the starting point at a constant speed in a time of 30 s.

What is the distance–time graph for the motion of the student?

A



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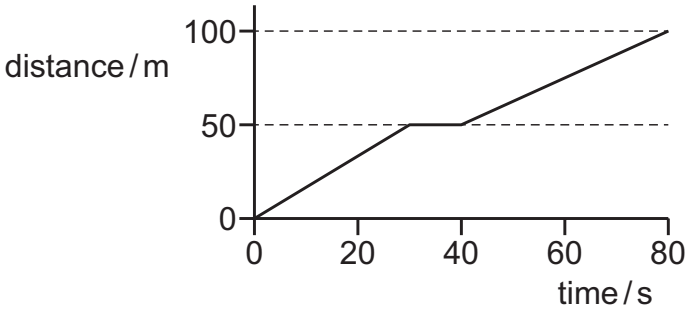

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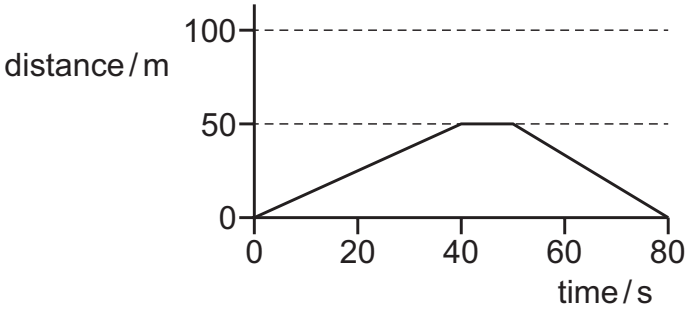

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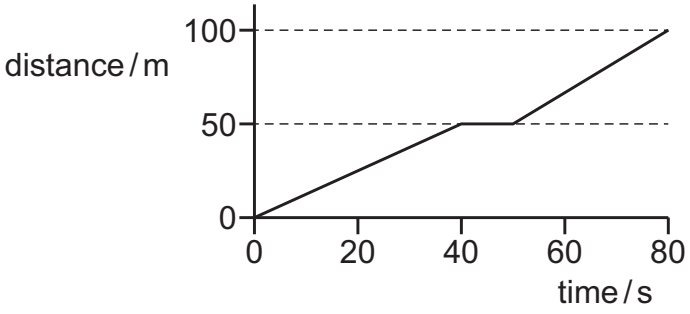
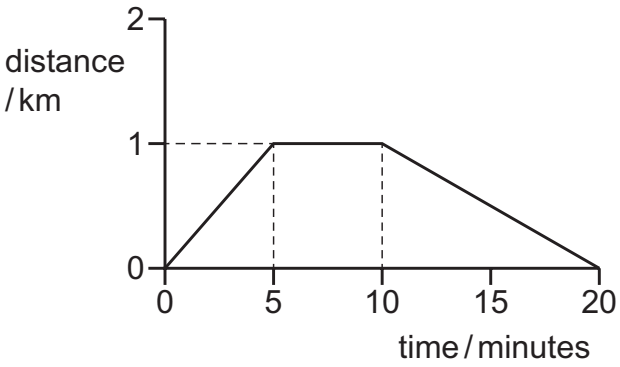


5 A student cycles uphill from home to a shop, taking 10 minutes. The student then spends 5 minutes in the shop before cycling home downhill at twice the initial speed.

Which graph could show the variation with time of the distance travelled by the student?

A



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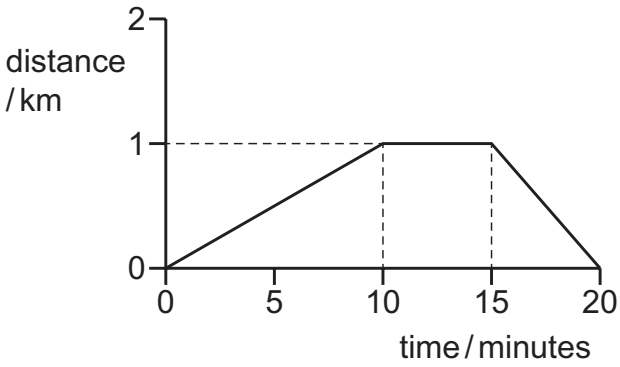

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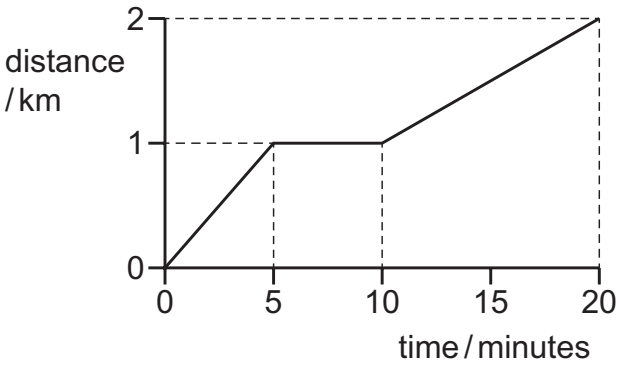

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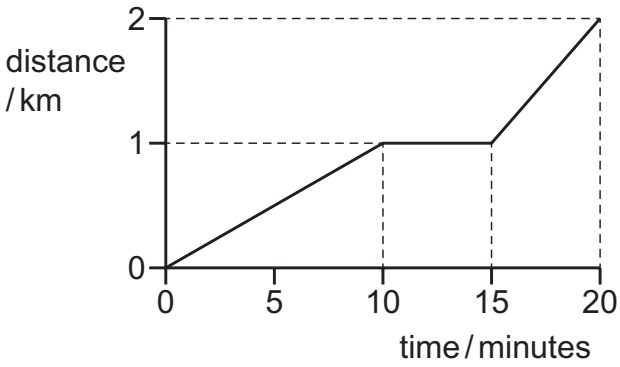


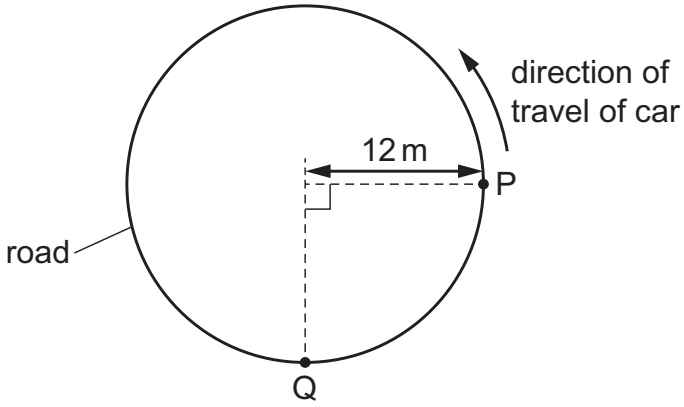
6 A person, travelling on a motorway a total distance of 200 km, travels the first 90 km at an average speed of 80 km h^{-1}.

Which average speed must be obtained for the rest of the journey if the person is to reach the destination in a total time of 2 hours 0 minutes?

A 110 km h^{-1} **B** 120 km h^{-1} **C** 122 km h^{-1} **D** 126 km h^{-1}

5 A car travels anticlockwise along a horizontal circular road of radius 12 m, as shown.

The car takes a time of 4.0 s to move from position P to position Q.



What is the magnitude of the average velocity of the car for the journey from P to Q?

A $4.2\,m\,s^{-1}$ **B** $4.7\,m\,s^{-1}$ **C** $6.0\,m\,s^{-1}$ **D** $14\,m\,s^{-1}$