

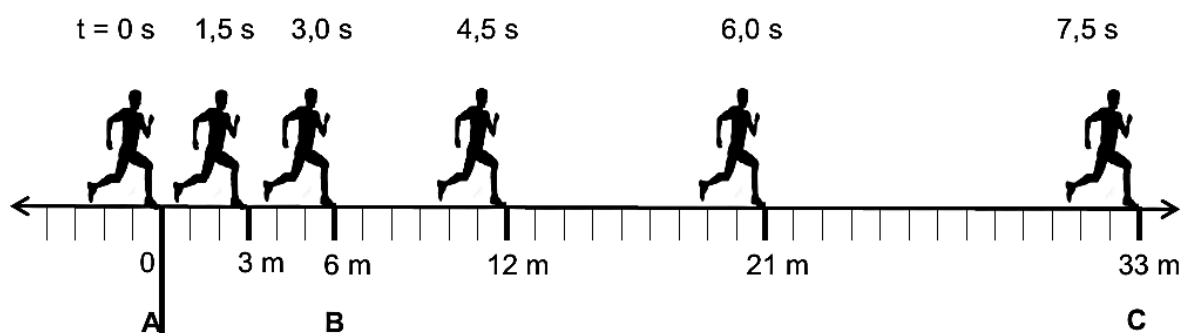
Graphs of Motion: Exam Revision Tracker

Attempt #1		Attempt #2		Attempt #3		Attempt #4		Attempt #5	
Total	Score	Total	Score	Total	Score	Total	Score	Total	Score
19		18		14		20		17	
Percentage =		Percentage =		Percentage =		Percentage =		Percentage =	

Graphs of Motion: Attempt #1

Total = 19 Marks

The diagram below shows the positions of an athlete at different time intervals during a race.



- Distinguish between *motion with uniform velocity* and *uniformly accelerated motion*. (4)
- What type of motion (motion with uniform velocity or uniformly accelerated motion) is represented by the following intervals?
 - A to B (1)
 - B to C (1)
- Use the information in the diagram above to draw an accurate position versus time graph on the graph paper on the attached ANSWER SHEET. (5)
- Define the term *instantaneous velocity* in words. (2)
- On the graph drawn for QUESTION 3.3, show how you would determine the instantaneous velocity. (2)
- Calculate the velocity of the athlete at 3 s. (4)

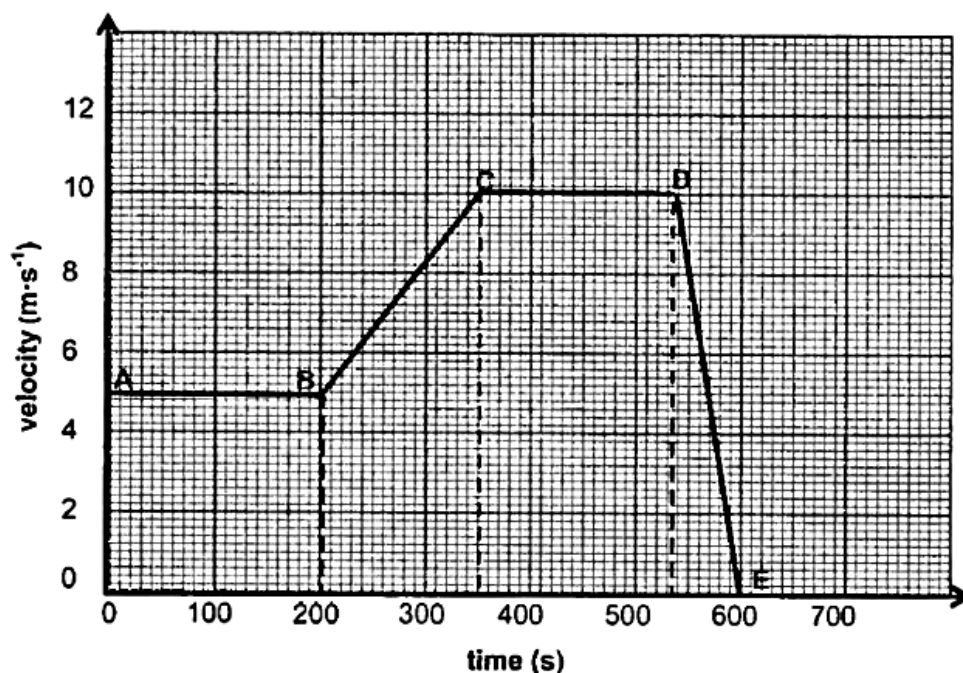
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Graphs of Motion: Attempt #2 ⚡

Total = 18 Marks

The velocity time graph below represents the motion of a girl riding her bicycle in an easterly direction on a straight, level road.



1. Write down the:
 - 1.1 Girl's initial velocity (2)
 - 1.2 Magnitude of the girl's velocity at $t = 300$ s (2)
2. Use the information from the graph to describe the girl's motion:
 - 2.1 From B to C (2)
 - 2.2 From C to D (2)
3. Without using equations of motion, calculate EACH of the following:
 - 3.1 Distance covered by the girl from A to C (4)
 - 3.2 Acceleration of the girl from D to E (4)
4. Give a reason using information from the graph why it can be concluded that the acceleration of the girl is HIGHEST during the interval D to E. (2)

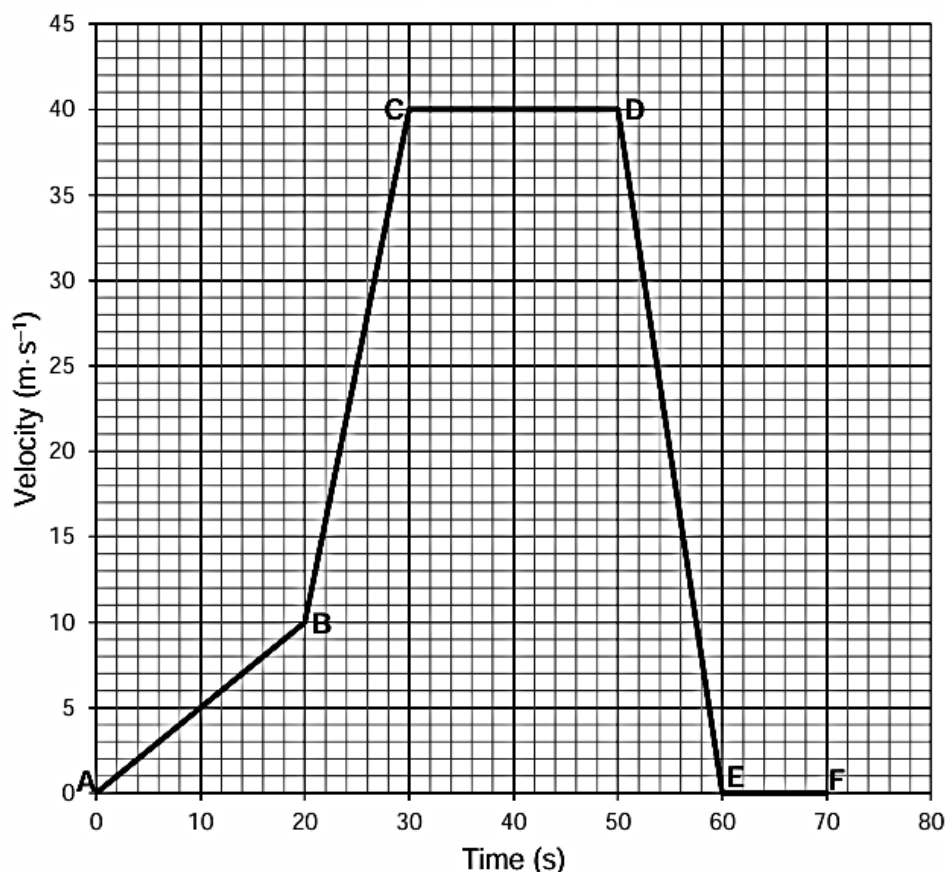
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Graphs of Motion: Attempt #3 ⚡

Total = 14 Marks

Study the velocity versus time graph below for the motion of a car travelling east.

Velocity vs time graph



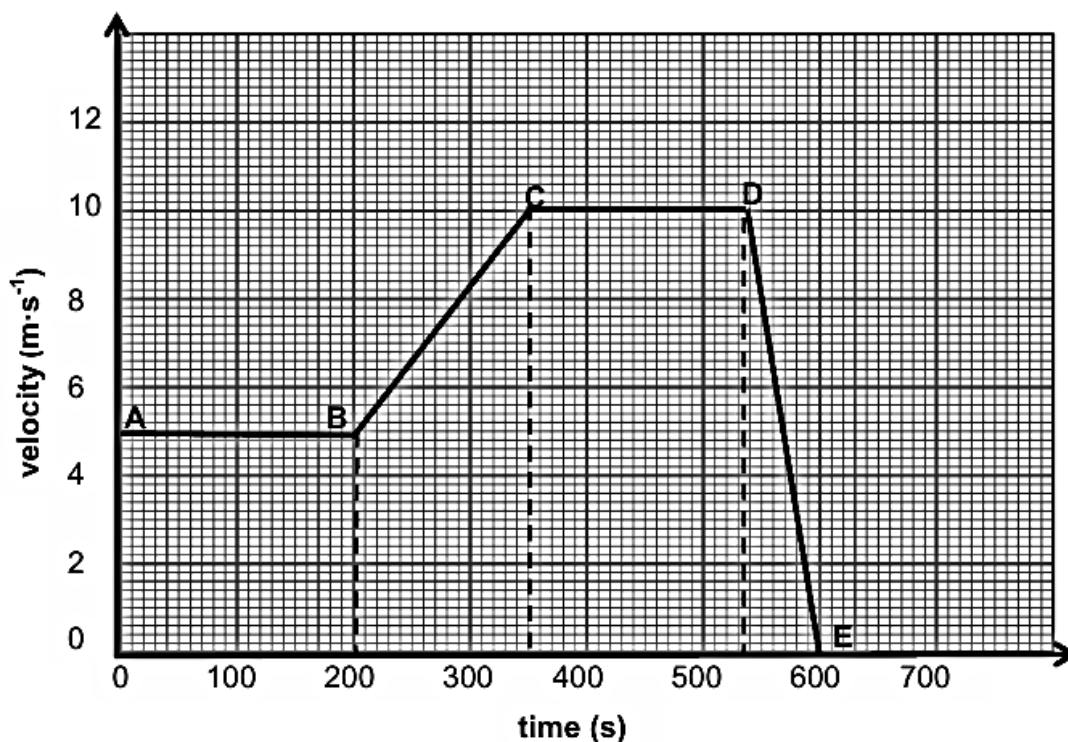
1. Define the term *acceleration*. (2)
2. Use the graph to describe the motion of the car in the following sections:
 - 2.1 AB (2)
 - 2.2 CD (2)
 - 2.3 EF (2)
3. Calculate the acceleration of the car between D and E. (4)
4. In which section, AB or BC, is the acceleration of the car the greatest? Give a reason for your answer. (2)

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Graphs of Motion: Attempt #4 ⚡

Total = 20 Marks

The velocity-time graph below represents the motion of a girl riding her bicycle in a northerly direction.



1. Write down the girl's initial velocity. (2)
2. Write down the magnitude of the girl's velocity at 300 s. (2)
3. Use the information on the graph to describe the motion of the girl:
 - 3.1 From B to C (2)
 - 3.2 From C to D (2)
4. WITHOUT USING EQUATIONS OF MOTION, calculate each of the following:
 - 4.1 Distance covered by the girl from A to C (4)
 - 4.2 Acceleration of the girl from D to E (4)
5. During which stages of the journey is the change in speed the greatest? (2)
6. Explain the answer to QUESTION 4.5. (2)

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Graphs of Motion: Attempt #5 ⚡

Total = 17 Marks

The engineers at a car company conduct various tests on their cars. During one of the tests they measure the change in position during equal time intervals. The results obtained are recorded in the table below.

TIME (s)	POSITION (m)
0	0
1	5
2	10
3	15
4	20

1. Give the correct term for *change of position per unit time*. (1)
2. For this test, write down the:
 - 2.1 Independent variable (1)
 - 2.2 Dependent variable (1)
3. Use the information in the table above and draw an accurate position-time graph on the graph paper on the attached ANSWER SHEET. (5)
4. Calculate the gradient of the graph. (4)
5. Draw (NOT to scale) a corresponding velocity-time graph for the motion of the car. Label the axes. (2)
6. Hence, deduce the magnitude of the acceleration of the car. (2)

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