

APOLLO

Mechanics (Kinematics of motion in a straight line)

FBISE Mathematics Class 12 (HSSC-II)

Domain A: Numbers and Algebra

7 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

ix.	A car accelerates uniformly from rest and travels a distance of 100 m in 10 s. What is the acceleration of the car?	$1m/s^2$	$2m/s^2$	$4m/s^2$	$0.5m/s^2$
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A car starts from rest and accelerates along a straight road. The acceleration of the car is given by $a(t) = 3t \text{ m/s}^2$, $t \geq 0$ where t is time in seconds. a. Find the velocity $v(t)$ of the car at any time t, given that the initial velocity $v(0) = 0$. b. Determine the displacement $s(t)$ of the car at any time t, given that the initial displacement $s(0) = 0$.	4
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Q6	A runner accelerates uniformly from rest to a velocity of 8 m/s in 4 seconds, maintains this velocity for 6 seconds, and then decelerates uniformly to rest in 5 seconds. a. Sketch the velocity-time graph for this motion. b. Interpret the graph to determine: (i) The total time of motion. (ii) The total distance covered by the runner.	8
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The displacement–time graph of a particle is a straight line from (0, 2) to (5, 12), where displacement is in meters and time in seconds. (a) Find the velocity of the particle. (b) Sketch the displacement–time graph. (c) Sketch the corresponding velocity–time graph.	04
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(ix)	The velocity of a particle is $v(t) = 3t^2 - 12t + 9 \text{ m/s}$. (a) Find displacement from $t = 0$ to $t = 5$ seconds. (b) Find total distance travelled in the same interval.	04
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04	OR	The displacement–time graph of a particle is a straight line from $(1, -4)$ to $(6, -11)$, where displacement is in meters and time in seconds. (a) Find the velocity of the particle. (b) Sketch the displacement–time graph. (c) Sketch the corresponding velocity–time graph.
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The velocity of a particle is $v(t) = 4t^2 - 16t + 12$ m/s. (a) Find displacement from $t = 0$ to $t = 3$ seconds. (b) Find total distance travelled in the same interval.	04
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