Q2 ✓ K1
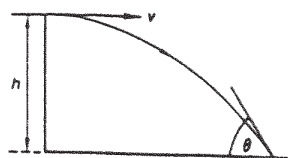
The diagram shows the path of a projectile fired with a horizontal velocity v from the top of a cliff of height h.
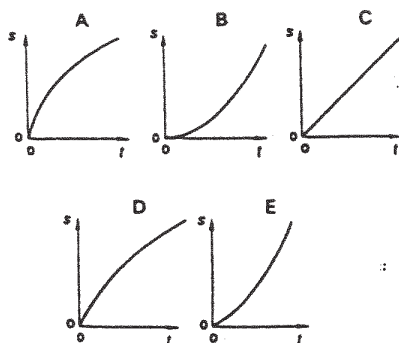

Which of the following values for v and h will give the greatest value of the angle θ?

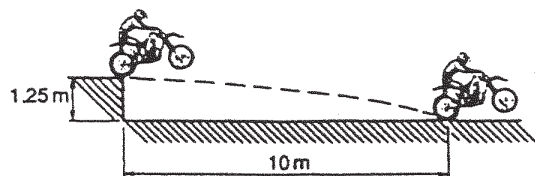|	v/m s^{-1}	h/m
A	10	30
B	10	50
C	30	30
D	30	50
E	50	10

J89 / Q3

Q3 ✓ K2

A body starts from rest at time $t = 0$ and moves with constant acceleration. Which graph best represents how s, the displacement of the body, varies with time?

J89 / Q4

Q12 ✓ K3

A motorcycle stunt-rider moving horizontally takes off from a point 1.25m above the ground, landing 10 m away as shown in the diagram.

What was the speed at take-off?

A 5 ms^{-1} B 10 ms^{-1} C 15 ms^{-1} D 20 ms^{-1} E 25 ms^{-1}

J93 / Q3

Q16 ✓ K4

In the absence of air resistance, a stone is thrown from P and follows a parabolic path in which the highest point reached is T.

The vertical component of acceleration of the stone is

A   zero at T.
B   greatest at T.
C   greatest at P.
D   the same at P as at T.

J94 / Q3

Q17 ✓ K5

A racing car accelerates uniformly through three gear changes with the following average speeds:

20 m s^{-1} for 2.0 s
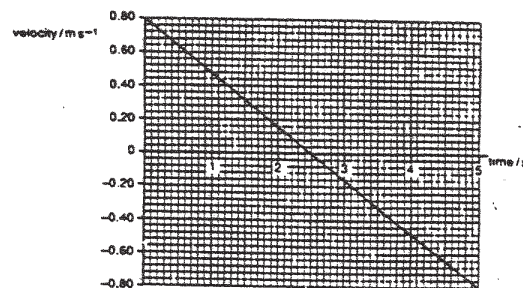40 m s^{-1} for 2.0 s
60 m s^{-1} for 6.0 s

What is the overall average speed of the car?

A   12 m s^{-1} C   40 m s^{-1}
B   13.3 m s^{-1} D   48 m s^{-1}

J94 / Q5

Q18 ✓ K6

The graph shows the variation with time of the velocity of a trolley, initially projected up an inclined runway.

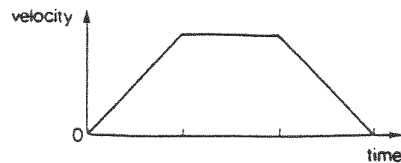What is the maximum distance up the slope which the trolley reaches?

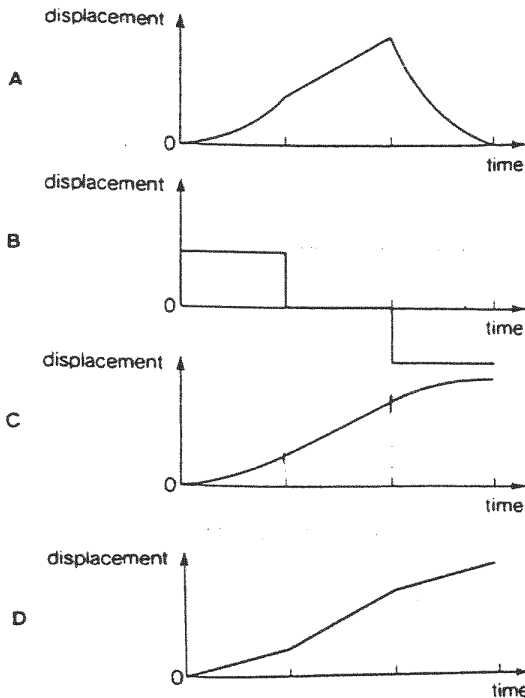A   0.80 m   C   2.0 m
B   1.0 m   D   4.0 m

D94 / Q3

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Q21 ✓ K7

The graph of velocity against time for a moving object is shown.

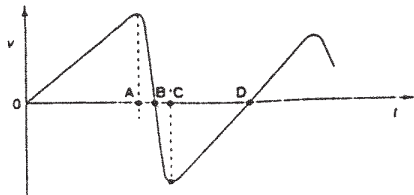Which of the following is the corresponding graph of displacement against time?

A

B

C

D

D95 / Q5

Q30 ✓ K9

The graph shows the variation with time t of the velocity v of a bouncing ball, released from rest. Downward velocities are taken as positive.
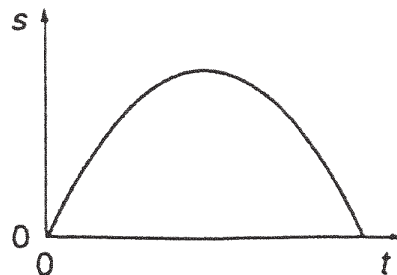
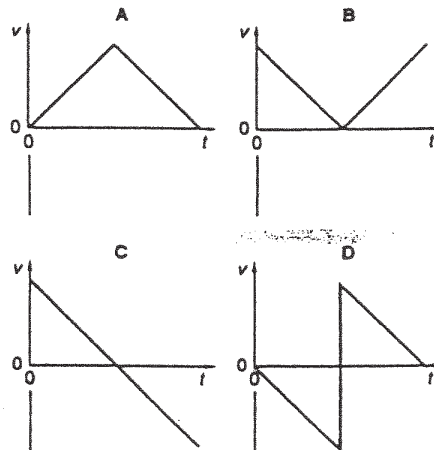At which time does the ball reach its maximum height after bouncing?

J99 / Q3

Q27 ✓ K8

The diagram shows the graph of displacement s against time t for a body moving in a straight line.

Which graph of velocity v against time t represents the motion of the body over this period?

D97 / Q3

Q20 K10

A car is travelling with uniform acceleration along a straight road. The road has marker posts every 100 m. When the car passes one post, it has a speed of 10 ms^{-1} and, when it passes the next one, its speed is 20 ms^{-1}.

What is the car's acceleration?

A 0.67 ms^{-2} B 1.5 ms^{-2} C 2.5 ms^{-2} D 6.0 ms^{-2}

D01 / Q3

Kinematics
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