

Question 1

A ball hits a bat with a velocity of 30 m/s , and leaves the bat travelling with a velocity of 20 m/s in the opposite direction. The ball is in contact with the bat for 0.10 s .

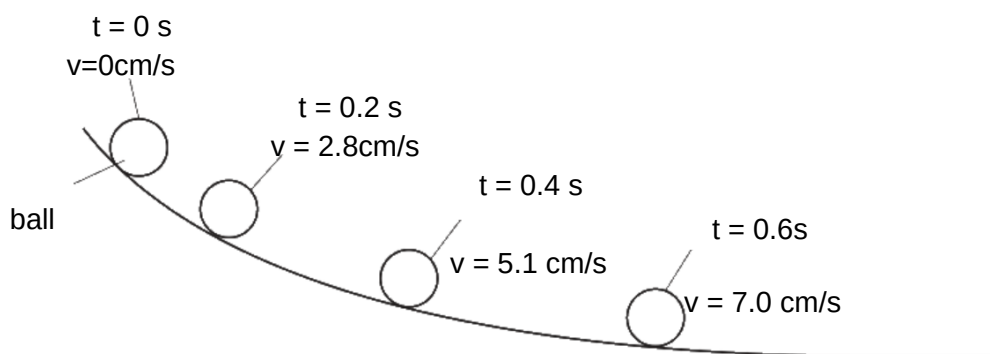
What is the magnitude of the acceleration of the ball whilst it is in contact with the bat?

- A** 1.0 m/s^2 **B** 5.0 m/s^2 **C** 100 m/s^2 **D** 500 m/s^2

Question 2

A student investigates the motion of a ball rolling down a slope.

The diagram shows the speed v of the ball at different times t .



Which statement describes the motion of the ball?

- A** The acceleration is not constant.
B The acceleration is negative.
C The speed is decreasing.
D The velocity is constant.

Question 3

A light ball is held at rest at the top of a tall cliff. It is released and falls through the air, eventually reaching its terminal velocity.

Which row describes the behaviour of the ball as it descends?

	the initial acceleration of the ball	the final acceleration of the ball
A	0	0
B	0	g
C	g	0
D	g	g

Question 4

A steel ball is dropped from the top floor of a building. Air resistance can be ignored.

Which statement describes the motion of the ball?

- A** The ball falls with constant acceleration.
- B** The ball falls with constant speed.
- C** The ball falls with decreasing speed.
- D** The ball falls with increasing acceleration.

Question 5

A car starts from rest.

The table shows the readings from its speedometer every 10 s.

time / s	0	10	20	30	40	50	60
$\frac{\text{speed}}{\text{m/s}}$	0	4	8	12	12	12	12

Which row describes the car's motion in the first 30 seconds and in the last 30 seconds?

	motion during first 30 s	motion during last 30 s
A	non-zero acceleration	at rest
B	zero acceleration	constant speed
C	zero acceleration	at rest
D	non-zero acceleration	constant speed