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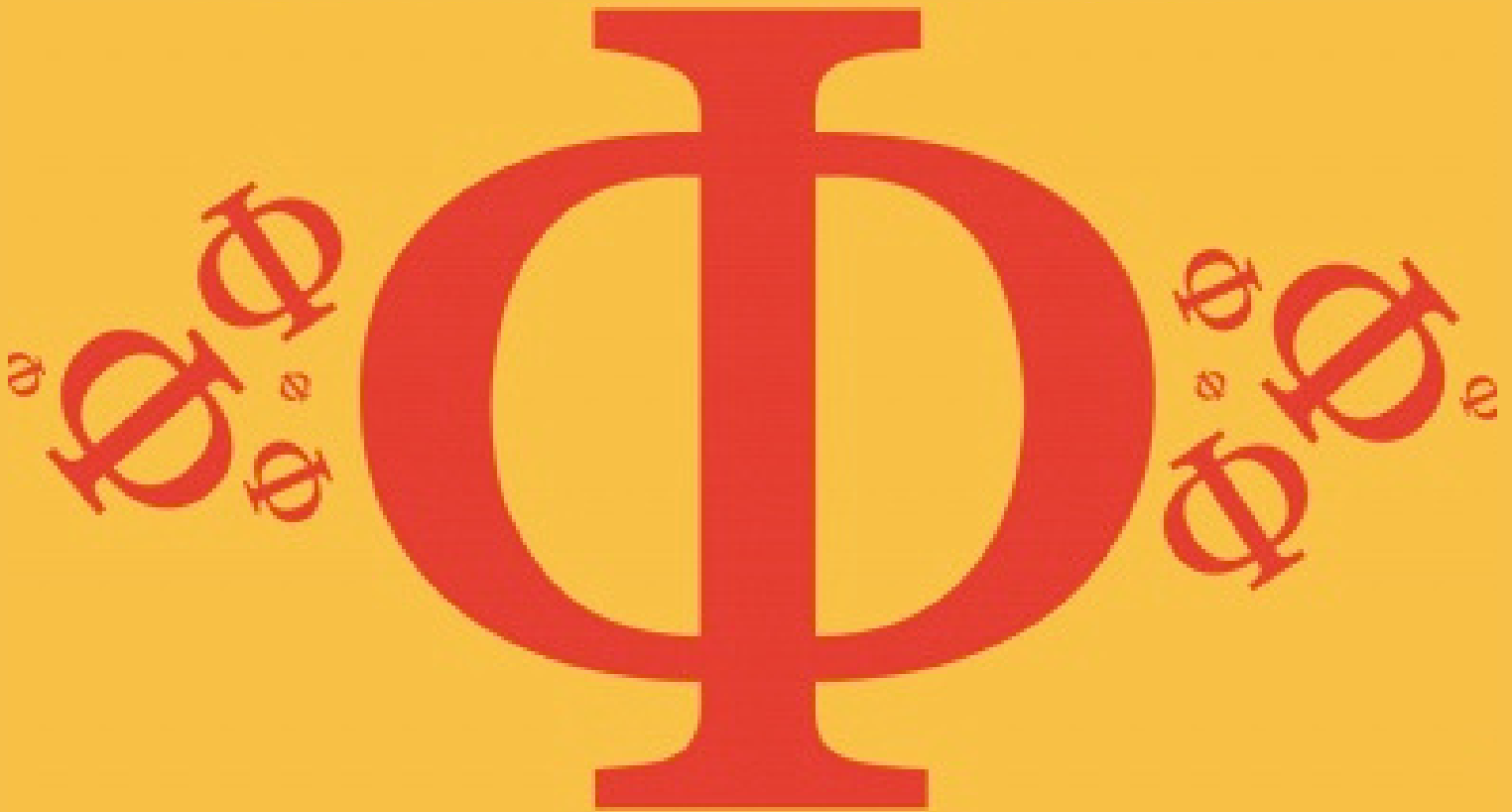
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## **2.4 Momentum & Impulse**

Easy



# **PHYSICS**

## **IB HL**

## 2.4 Momentum & Impulse

### Question Paper

Course	DP IB Physics
Section	2. Mechanics
Topic	2.4 Momentum & Impulse
Difficulty	Easy

EXAM PAPERS PRACTICE

Time allowed: 20  
Score: /10  
Percentage: /100

### Question 1

A car drives into a wall. The change in momentum is  $17\,000\text{ kg ms}^{-1}$  and the time of impact is 0.1 seconds.

What is the force acting on the car as a result of the collision?

- A.  $17\,000\text{ N}$
- B.  $1700\,000\text{ N}$
- C.  $170\,000\text{ N}$
- D.  $1700\text{ N}$

[1 mark]

### Question 2

Which of the following is the correct equation for impulse?

- A.  $I = mv - mu$
- B.  $I = F\Delta p$
- C.  $I = \Delta t$
- D.  $I = \frac{F}{\Delta t}$



[1 mark]

### Question 3

Which feature on a force-time graph represents the impulse?

- A. Gradient
- B. y-intercept
- C. Area
- D. x-intercept

[1 mark]

### Question 4

What is the equation for momentum?

A.  $p = Fs$

B.  $p = mv$

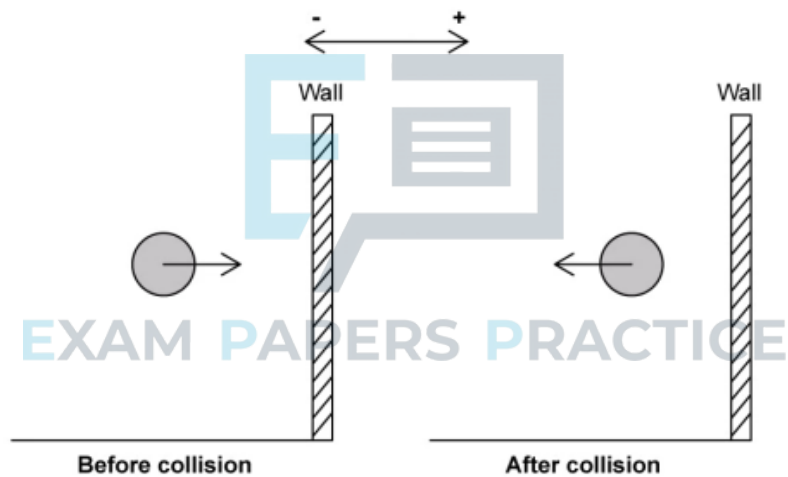
C.  $p = \frac{1}{2}mv^2$

D.  $p = F\Delta t$

[1 mark]

### Question 5

A tennis ball is thrown at a wall and then bounces off.



Which row states the correct directions for the velocity,  $v$ , before and after hitting the wall?

	Before collision	After collision
A.	-	-
B.	-	+
C.	+	-
D.	+	+

[1 mark]

### Question 6

Before a collision object A is stationary and object B is travelling at  $1 \text{ ms}^{-1}$ .

What is the correct symbol and value for the initial velocity of object A?

- A.  $u_B = 0$
- B.  $u_A = 0$
- C.  $v_A = 0$
- D.  $u_A = 1$

[1 mark]

### Question 7

What is the definition of an external force?

- A. Forces that act on a system from outside of it
- B. Forces exchanged by the particles in a system
- C. Every action has an equal and opposite reaction
- D. The rate of change of momentum on a body

[1 mark]

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### Question 8

What is the definition of an inelastic collision?

- A. A collision where kinetic energy is conserved
- B. A collision where the momentum is conserved
- C. A collision where both objects are stationary after the collision
- D. A collision where kinetic energy is not conserved

[1 mark]

### Question 9

What is the main purpose of the crumple zone in a car?

- A. To decrease the contact time over which a collision occurs.
- B. To increase the contact time over which a collision occurs.
- C. To reduce the mass of the car involved in the collision.
- D. To reduce damage to the rest of the car in a collision.

[1 mark]

### Question 10

What type of collision are explosions?

- A. Elastic
- B. Conserved
- C. Inelastic
- D. Impulsive

[1 mark]