Momentum – 2019 June
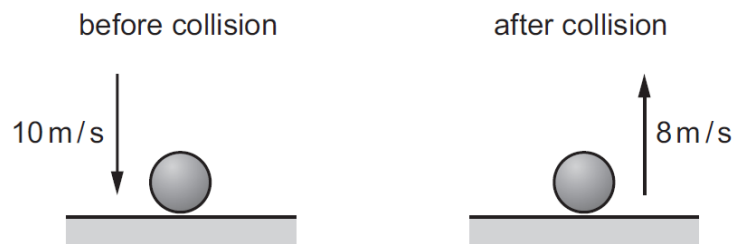
1. 0625/21/M/J/19/No.9

A ball of mass 0.50 kg falls and hits the floor at 10 m/s.

It rebounds at speed 8.0 m/s, as shown.

before collision   after collision

10 m/s ↓ ●   ● ↑ 8 m/s

The collision between the ball and the floor lasts for 0.50 s.

What is the average force acting on the ball during the collision?

A   2.0 N upwards

B   2.0 N downwards

C   18 N upwards

D   18 N downwards

2. 0625/22/M/J/19/No.9

An object of mass 4.0 kg is moving with a velocity of 3.0 m/s in a straight line.

What is the momentum of the object?

A   0.75 kg m/s   B   1.3 kg m/s   C   12 kg m/s   D   24 kg m/s

3. 0625/23/M/J/19/No.9

How is momentum p calculated in terms of the mass m of a body and its velocity v, and what type of quantity is p?

	equation	type of quantity
A	$p = m \times v$	scalar
B	$p = m \times v$	vector
C	$p = \dfrac{m}{v}$	scalar
D	$p = \dfrac{m}{v}$	vector

4. 0625/22/F/M/19/No.10

A constant force acts on a body causing the momentum of the body to increase.

Which expression relates the force to the momentum and the time taken?

A force = $\dfrac{\text{change in momentum}}{\text{time taken}}$

B force = $\dfrac{\text{momentum}}{\text{time taken}}$

C force = change in momentum × time taken

D force = momentum × time taken