1. 0625/21/O/N/19/No.9

Two objects X and Y move directly towards each other. The objects have the same mass.

Object X has a velocity of 5.0 m/s to the right. Object Y has a velocity of 3.0 m/s to the left.

Object X and object Y collide and stick together.

What is their velocity after colliding?

A 1.0 m/s to the left

B 1.0 m/s to the right

C 4.0 m/s to the left

D 4.0 m/s to the right

2. 0625/22/O/N/19/No.9

A ball is at rest on the ground. A boy kicks the ball. The boy's boot is in contact with the ball for 0.040 s.

The average force on the ball is 200 N. The ball leaves the boy's boot with a speed of 20 m/s.

Which row gives the impulse of the boot on the ball and the average acceleration of the ball?

	impulse on ball N s	average acceleration of ball m/s^2
A	8	0.8
B	8	500
C	5000	0.8
D	5000	500

3. 0625/22/O/N/19/No.10

An object P of mass 80 g collides with another object Q of mass 40 g.

After the collision, P and Q stick together and then travel on together.

Before the collision, P is travelling at a speed of 6.0 m/s and Q is at rest.

What is the speed of P and Q after the collision?

A   2.0 m/s   B   3.0 m/s   C   4.0 m/s   D   6.0 m/s

4. 0625/23/O/N/19/No.9

The momentum of a body is changed by a force acting on it for a period of time.

Which action increases the change in momentum?

A   doubling the force and halving the time

B   doubling the force for the same time

C   halving both the force and time

D   halving the force and doubling the time

5. 0625/23/O/N/19/No.10

A toy train P of mass 0.50 kg is travelling along a straight track with a velocity of 3.0 m/s. It collides with a stationary train Q of mass 1.0 kg. The two trains then stick together.

What is the velocity of the combined trains?

A   1.0 m/s in the same direction as P was travelling originally

B   1.0 m/s in the reverse direction to that in which P was travelling originally

C   1.5 m/s in the same direction as P was travelling originally

D   1.5 m/s in the reverse direction to that in which P was travelling originally