1. A particle A has mass 4 kg and a particle B has mass 2 kg.

The particles move towards each other in opposite directions along the same straight line on a smooth horizontal table and collide directly.

Immediately before the collision, the speed of A is $2u\,\text{m s}^{-1}$ and the speed of B is $3u\,\text{m s}^{-1}$

Immediately after the collision, the speed of B is $2u\,\text{m s}^{-1}$

The direction of motion of B is reversed by the collision.

(a) Find, in terms of u, the speed of A immediately after the collision.

(3)

(b) State the direction of motion of A immediately after the collision.

(1)

(c) Find, in terms of u, the magnitude of the impulse received by B in the collision. State the units of your answer.

(3)

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Question 1 continued

(Total for Question 1 is 7 marks)