1. A particle P of mass $3m$ and a particle Q of mass $5m$ are on a smooth horizontal surface. The particles move towards each other in opposite directions along the same straight line and collide.

Immediately before the collision, the speed of P is $3u$ and the speed of Q is $4u$

The magnitude of the impulse exerted on P by Q in the collision is $\frac{33}{2}mu$

Find

(i) the speed of P immediately after the collision,

(ii) the speed of Q immediately after the collision.

(6)

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Question 1 continued

(Total for Question 1 is 6 marks)