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8. A particle A has mass $4m$ and a particle B has mass $3m$. The particles are moving along the same straight line on a smooth horizontal plane. They are moving in opposite directions towards each other and collide directly.

Immediately before the collision the speed of A is $2u$ and the speed of B is $3u$.

The direction of motion of each particle is reversed by the collision.

The total kinetic energy lost in the collision is $\frac{473}{24}mu^2$

Find

(i) the coefficient of restitution between A and B,

(ii) the magnitude of the impulse received by A in the collision.

(12)

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