2 Two particles, P and Q, of masses 3 kg and 5 kg respectively, are at rest on a smooth horizontal plane. P is projected at a speed of $4\,\text{m s}^{-1}$ directly towards Q. After P and Q collide, P has speed $1\,\text{m s}^{-1}$.

(a) Find the two possible speeds of Q after the collision. [3]

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It is given that λ J of kinetic energy, where $\lambda > 0$, is lost during the collision.

(b) Find the value of λ. [2]

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