



2 (a) State Newton's three laws of motion.

First law

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Second law

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Third law

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[3]

(b) Use Newton's laws to deduce the principle of conservation of momentum.

[3]





- (c) In space, an object of mass 28 kg travelling with velocity 88 ms^{-1} collides with a second object of mass 17 kg travelling in the same direction with a velocity of 53 ms^{-1} . The collision is inelastic.

After the collision, the 28 kg object continues to move in the original direction but with a velocity of 67 ms^{-1} .

Calculate

- (i) the velocity of the second object after the collision

velocity = ms^{-1} [2]

- (ii) the loss of kinetic energy in the collision.

loss of kinetic energy = J [2]

[Total: 10]

