

Newton's 3rd Law

Starter

1. **(Review of last lesson)** A particle is suspended in equilibrium by three light inextensible strings. The tension in the strings is $\begin{pmatrix} -2 \\ 1 \end{pmatrix}$ N, $\begin{pmatrix} 0 \\ -3 \end{pmatrix}$ N and $\begin{pmatrix} x \\ y \end{pmatrix}$ N. Find x and y .

Notes

Newton's 3rd law

For two bodies, A and B , in contact with each other, the force exerted by A on B is equal in magnitude but opposite in direction to the force exerted by B on A .

E.g. 1 A person pushes a table in order to try and move it.

- (a) The person pushes with a force of 30 N but the table does not move. What was the frictional force acting?
- (b) This time the person pushes with a force of 55 N but the table still does not move. What was the frictional force acting?

E.g. 2 Two ice skaters of mass 75 kg and 63 kg push against each other. If the 75 kg moves off with an acceleration of 3.7 m/s^2 , find the acceleration of skater B.

Video: [Newton's 3rd Law](#)

[Solutions to Starter and E.g.s](#)

Exercise

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Summary

Newton's 3rd law: for two bodies, A and B , in contact with each other, the force exerted by A on B is equal in magnitude but opposite in direction to the force exerted by B on A .