



## Scalars and Vectors

### Checklist statement ✓

I can explain the difference between scalar and vector quantities.

I can identify scalars and vectors, including velocity and speed, mass, force and weight, acceleration, and displacement and distance.

I can add vectors by calculation for two vectors at right angles.

I can add vectors using scale drawings, including vectors at angles other than  $90^\circ$ .

I can resolve a vector into two perpendicular components.

I can resolve forces into components parallel and perpendicular to an inclined plane.

I can solve problems using resolved forces or by using a closed triangle of forces.

I can state the conditions for equilibrium for two or three coplanar forces acting at a point.

I can explain equilibrium in the context of an object at rest or moving with constant velocity.

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## Moments

### Checklist statement ✓

I can define the moment of a force about a point.

I can apply the moment equation (moment = force  $\times$  perpendicular distance), define all terms and know their standard units.

I can explain what is meant by a couple as a pair of equal and opposite coplanar forces.

I can apply the moment of a couple equation (moment = force  $\times$  perpendicular distance between the lines of action), define all terms and know their standard units.

I can state and apply the principle of moments.

I can define the centre of mass of an object.

I know that the centre of mass of a uniform regular solid is at its geometric centre.