

Moments

Physics

Turning effect, and the two conditions for equilibrium.

A body is in equilibrium when the resultant force and the resultant moment are both zero.

moment = $F \times$ perpendicular distance

Principle of moments **Sum clockwise = sum anticlockwise**

About any point.

Choosing a pivot

Pick one that eliminates an unknown

Its moment becomes zero.

Couple

Two equal opposite forces; moment = Fd

No resultant force.

THE COMMON MISTAKE

✗ **Using the distance along the force's line**

✓ **Using the perpendicular distance**

Moment is force times the perpendicular distance from the pivot to the line of action, not to the point of application.

Take moments about the point where the most unknowns act. Their moments vanish and the algebra collapses.