

# Moments

Edward Jex

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A moment is the product of each force and its distance from a fixed point, the pivot. It models the effect of a force on an extended object. A rigid body is an object or body that is assumed to have a size and shape and not to be deformed when forces act upon it. Equilibrium is where the sum of all the moments is 0 as well as the sum of the forces so the motion is uniform. Levers can be used to lift heavy objects using a relatively small force, based on moments.

The moment can be found by  $\vec{M} = \vec{F} \times \vec{X}$  Where F is the force and X is the displacement vector from the pivot.

In most questions, moments can be treated as scalars as it makes it much easier to solve. In this case  $|\vec{M}| = |\vec{F}| \cdot d$