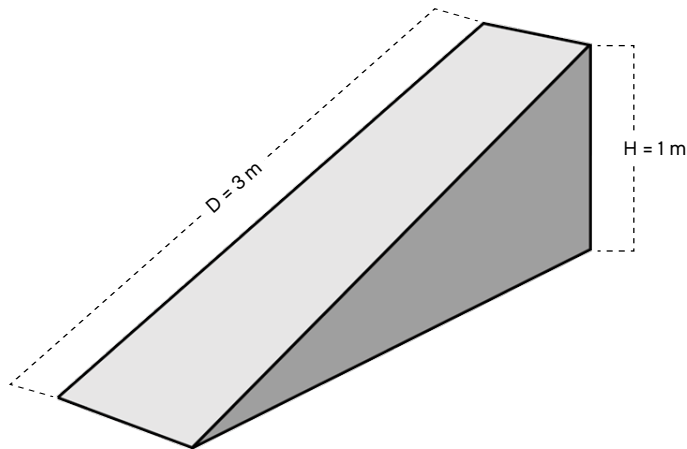


## The mechanical advantage of an inclined plane

The mechanical advantage of an inclined plane describes the relationship between the length of the slope and the height of the inclined plane.

The mechanical advantage can be calculated using the following formula:

$$\text{Mechanical advantage} = \frac{\text{Distance load travels}}{\text{Height load is lifted}}$$



$$\text{Mechanical advantage} = \frac{3 \text{ m}}{1 \text{ m}}$$

$$\text{Mechanical advantage} = 3$$

Calculating the effort needed to raise a known load can be done using this formula:

$$\frac{\text{Load}}{\text{Effort}} = \frac{\text{Distance}}{\text{Height}}$$

Calculating the effort needed to move a load is also simple in theory. But in practice friction between the load and the surface of the ramp can affect the effort forces greatly.



### Did you know?

The mechanical advantage of straight vertical lift will always be 1. Meaning you would have to raise the entire load without any kind of mechanical advantage.