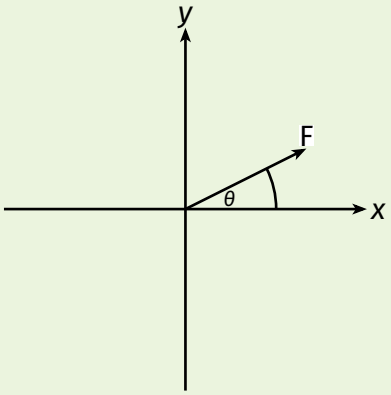
Free Body Diagram - Visualize Forces

Use Vector point to visualize forces

Forces can be represented as a **vector** and an **angle**, This can be used to get a clear look of what the force is doing on the object.



In this case, $F \approx 2.23_N$ with an angle of $26.56°$. This can also be represented as the vector $(2, 1)$.

Let's see how we can calculate this:

Horizontal component:

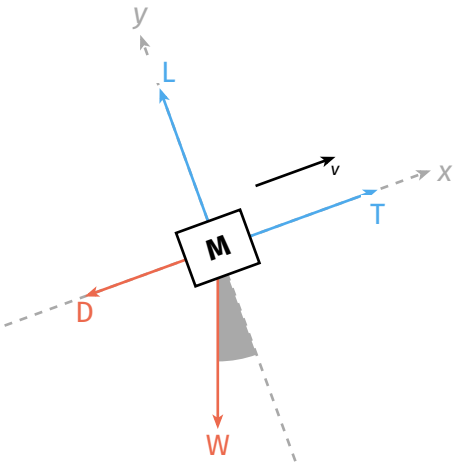
$F_x = F\cos(\theta) \Rightarrow F_x = 2.23\cos(26.56) = 2$

Vecrtical component:

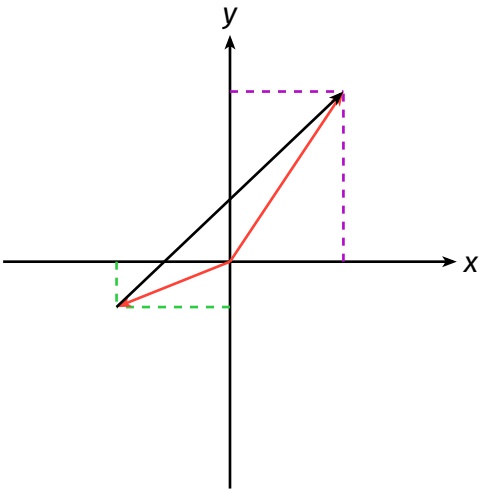
$F_y = F\sin(\theta) \Rightarrow F_y = 2.23\sin(26.56) = 1$

And we get the **vector**: $(2, 1)$

Examples



Forces on a plane



Vector building

Given functions

```
#vector(
  (x0, y0), (x1, y1),
  stroke: (paint: black),
  angle-style: (),
  angle-invert: false,
  components: (stroke: none),
  label: none,
  name: none
)

#axis(
  (xmin, xmax), (ymin, ymax),
  stroke: (paint: black),
  horizontal_label: $x$,
  vertical_label: $y$,
  labels: true
)

#rotate_vector((x, y) ,angle)
```