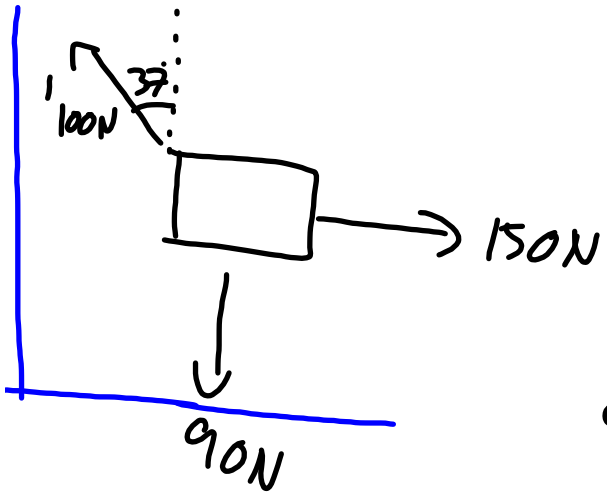
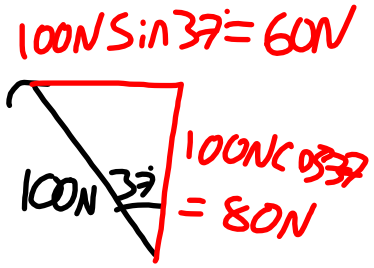
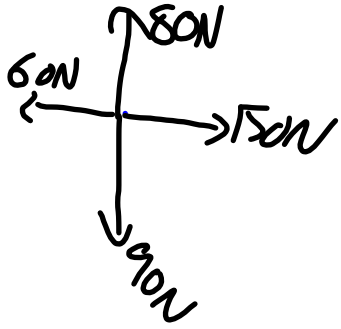






x

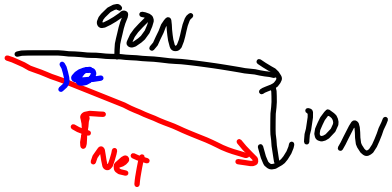
$\Sigma F_x = 150N - 60N$

$= 90N[E]$

y

$\Sigma F_y = 90N - 80N$

$= 10N[S]$



$F_{NET}^2 = (90N)^2 + (10N)^2$

$F_{NET} = 90.4N$

$\theta = \tan^{-1}\left(\frac{10N}{90N}\right)$

$= 6.3°$

$F_{NET} = 90.4N \ [E\ 6.3°S]$

$F_4 = 90.4N[W6.3°N]$

Science is a study that tries to make things, that are considered unmeasurable, measurable.

On other words...

Science tries to make things, that are considered invisible, visible.

Forces:

We can feel, but cannot see forces. When we work with forces we want to represent forces, we draw an arrow in the direction the force is applied. The length of the vector represents the magnitude.

Scale:

The longer the arrow is drawn, the larger the represented force is.

A scale helps us determine from a diagram how large a force is from a drawing.

The scale equates a distance in the drawing to a magnitude of force.

Ex. 2 cm = 1 N

From the freebody diagram, we can move the force vectors so the force vectors line up tip ro tail.

After lining all the vectors tip to tail,the resultant force points from the tail of the first vector to the tip of the last. We can measure this distance and apply the scale to get the resultant force.

Example:

An object experiences 3 forces:

- a 5 N force East.
- a 8 N force N30°W
- a 4 N force S10°E

Try it:

Draw each force vector to scale and sum the forces to find the net force. Using the scale defined, determine the net force from your drawing.

- 6 N force pulling [N]
- 4 N force pulling [W30°N]
- 5 N force pulling [E30°S]
- 7.5 N force pulling [N70°W]