Vectors

Goal for this class:

    1. To draw a scaled vector diagram based on given information

Homework:

    1. Draw a scaled vector diagram for vector

$$\vec{A} = 40 \text{ km } [E30^\circ N]$$

In our study of mechanics (motion) we will describe many quantities such as distance, displacement, speed, velocity, force, energy, etc....

These quantities are *vector* quantities or *scalar* quantities.

A *vector* quantity... describes magnitude, units of measure <u>and</u> direction

ex: displacement, velocity ...

A *scalar* quantity... describes magnitude and units of measure

ex: distance, speed

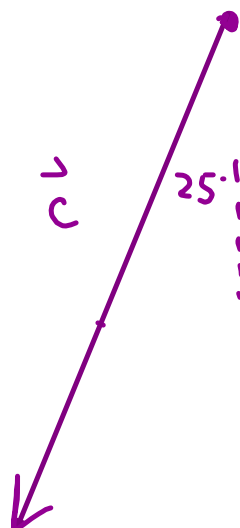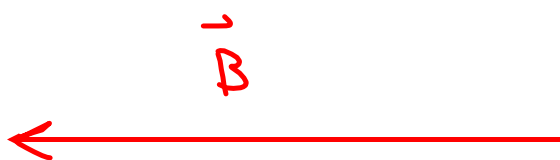A *vector arrow* is the graphical representation of a vector.

Examples:

$\vec{A}$= 5 m [N] $\vec{B}$= 10 m [W] $\vec{C}$= 8 m [S25^{0}W]

Scale 1 cm: 1m

$\vec{A}$

$\vec{B}$

$\vec{C}$ 25.1

A scaled vector diagram requires:

     1. A scale
     2. A vector <u>arrow</u>
     3. Magnitude and direction are listed

(Note we can represent other vector quantities in this way, like force, by using a different scale, ex: 1 cm = 1 Newton)

     1. Draw a scaled vector diagram for vector

$$\vec{A} = 40 \text{ km } [E30^{\circ}N]$$

Scale
1 cm = 20 km

$\vec{A}$

30°