Vector Representation

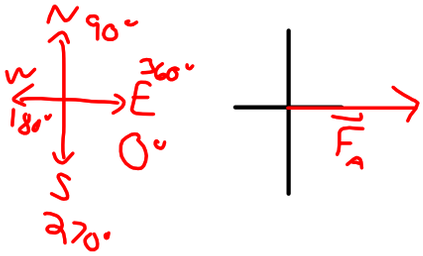
Vectors are represented by arrows.

- Length of the drawn arrow represents the magnitude of the vector.
  - > Typically must include a scale to give vector meaning, i.e. the length of the arrow represents some other physical quantity

- The direction of the arrow represents the direction of the vector.
  - > Several ways to represent direction, all ways are equal

Ex. F_A = 30 N [E] scale 1.0 cm = 10 N

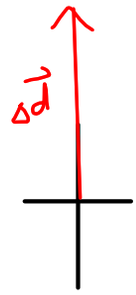
$30\,N \times \frac{1.0\,cm}{10\,N} = 3.0\,cm$



Ex. Δd = 45 km [N]

scale 1.0 cm = 10 km

$45\,km \times \frac{1.0\,cm}{10\,km} = 4.5\,cm$

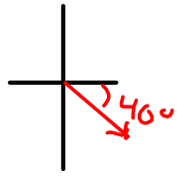


Ex. $\vec{a}$ = 7.2 m/s^2 [E 40° S]

start rotate 40° towards south

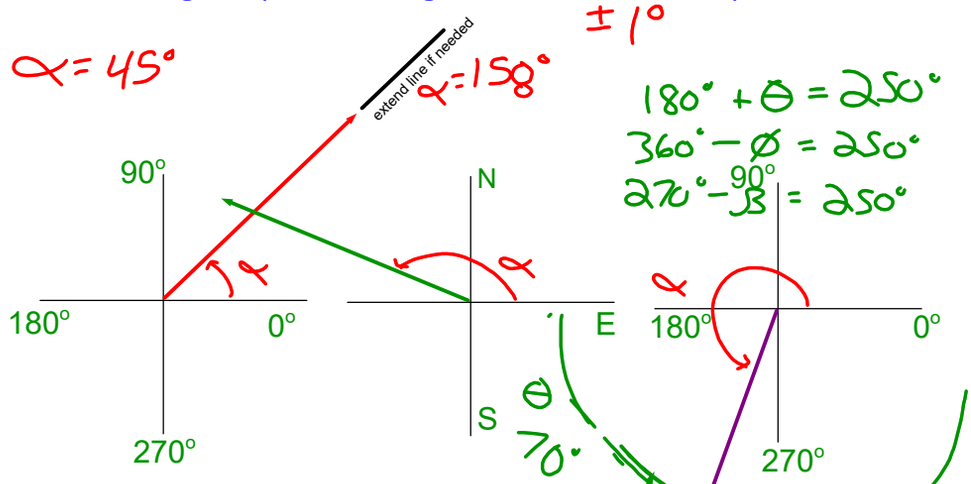
scale 1.0 cm = 3.6 m/s^2

$7.2\,m/s^2 \times \frac{1.0\,cm}{3.6\,m/s^2} = 2.0\,cm$

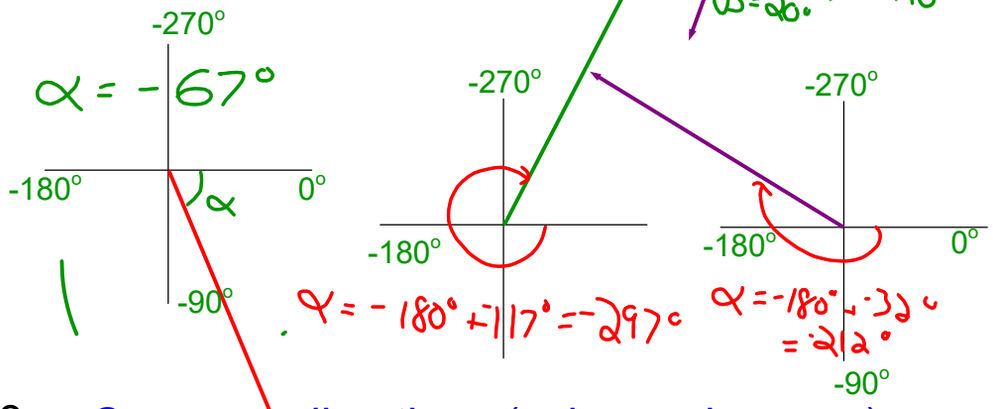


Noting directions - 3 Approaches

1. Positive angles (measuring counterclockwise)



2. Negative angles (measuring clockwise)



3. Compass directions (using major axes)

angle $0 \le \theta \le 90°$