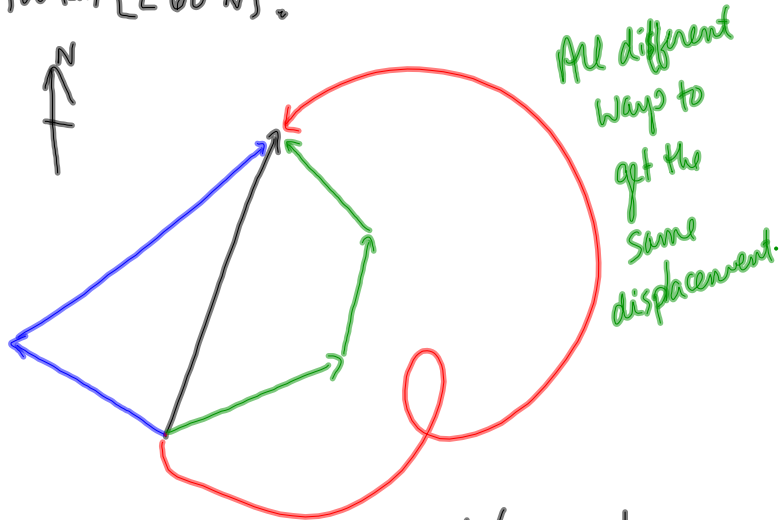


## Components of a Vector

What are the northerly and easterly components of a plane's displacement if its displacement is 100 km [E 60° N]?



### Easterly Component



$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos 60^\circ = \frac{\Delta E}{100 \text{ km}}$$

$$\Delta E = 100 \text{ km} \cos 60^\circ$$

$$\Delta E = 50 \text{ km}$$

The easterly component is 50 km

### Northerly Component

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin 60^\circ = \frac{\Delta N}{100 \text{ km}}$$

$$\Delta N = 100 \text{ km} \sin 60^\circ$$

$$\Delta N = 100 \text{ km} \frac{\sqrt{3}}{2}$$

$$\Delta N = 87 \text{ km}$$