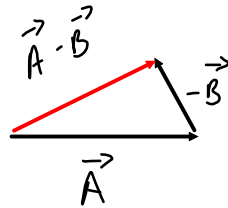
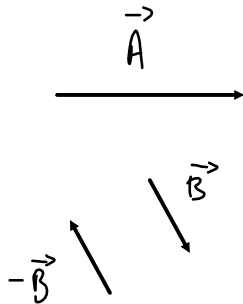


Subtraction of Vectors

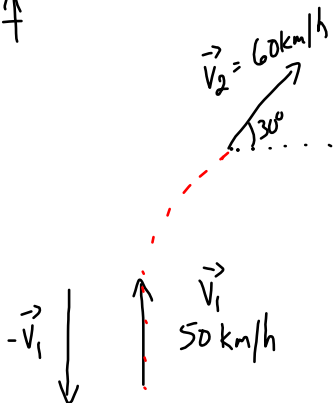
Consider: $5 - 3 = 5 + (-3)$

You can express a subtraction problem as a addition problem

$$\vec{A} - \vec{B} = \vec{A} + (-\vec{B})$$



MP/97
↑ N

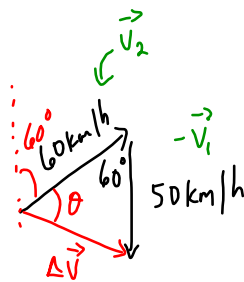


$$\vec{V}_1 = 50 \text{ km/h [N]}$$

$$\vec{V}_2 = 60 \text{ km/h [N}60^\circ\text{E]}$$

$$\vec{V}_2 - \vec{V}_1 = 60 \text{ km/h [N}60^\circ\text{E]} - 50 \text{ km/h [N]}$$

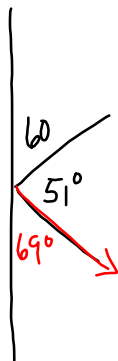
↑
must use vector subtraction which can be expressed as an addition problem.



$$c^2 = a^2 + b^2 - 2ab \cos C$$

$$c^2 = 50^2 + 60^2 - 2(50)(60) \cos 60^\circ$$

$$C = 56 \text{ km/h}$$



$$\Delta V = 56 \text{ km/h [S}69^\circ\text{E]}$$

$$\frac{a}{\sin A} = \frac{b}{\sin B}$$

$$\frac{50}{\sin \theta} = \frac{56}{\sin 60}$$

$$\sin \theta = \frac{50 \sin 60}{56}$$

$$\theta = 51^\circ$$

TODO

PP/98/13-15