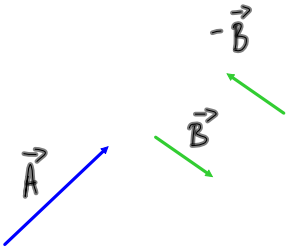
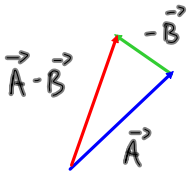
Subtraction of Vectors (p94-98)

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

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





mp|97

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

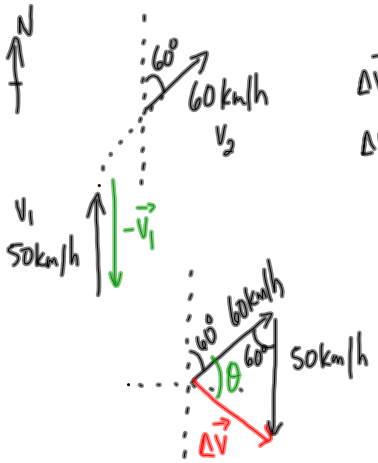
$\vec{V}_2 = 60\frac{km}{h}[N60°E]$

$\Delta\vec{V} = \vec{V}_2 - \vec{V}_1$

$\Delta\vec{V} = 60km/h[N60°E] - 50km/h[N]$

Vector subtraction!

$\Delta V = ??$



$\Delta\vec{V} = \vec{V}_2 - \vec{V}_1$

$\Delta\vec{V} = \vec{V}_2 + (-\vec{V}_1)$

Law of Cosines:

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

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

$C = 56km/h$

$\Delta\vec{V} = 56km/h[E21°S]$

Law of Sines:

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

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

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

$\theta = 51°$

PP|98|13-15

TEST - Thurs

Book: §3-2 Vectors in a Plane

§3-3 Relative Velocities

§5-2 Newton's Second Law
(forces in 2D - p172-175)

§10-1 Using Vector Components to Analyze Motion

You need to know:

- drawing vector diagrams (head to tail + resultant)
- components of vectors
- relative motion
- forces at angles
  - side on view
  - birds eye view
- incline problems
- subtraction of vectors

FBD, Newton's 2nd Law ($\vec{F}_{net} = m\vec{a}$)

an x-y chart is useful when adding 3 or more vectors.

What should you do to study:

1. Be sure all PP are done
2. recommended review questions
3. Look at previous NSEs
4. McGraw-Hill Quizzes.