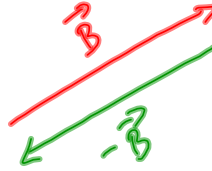Subtraction of Vectors (p94-98)

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

$$\vec{A} - \vec{B} = \vec{A} + (-\vec{B})$$
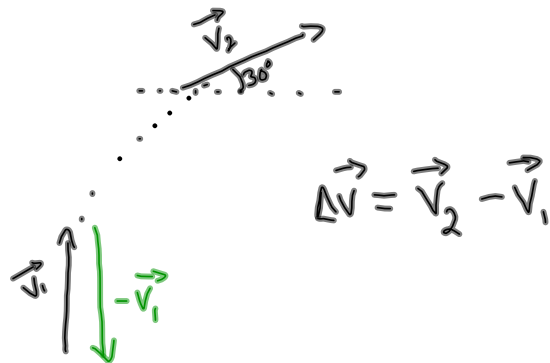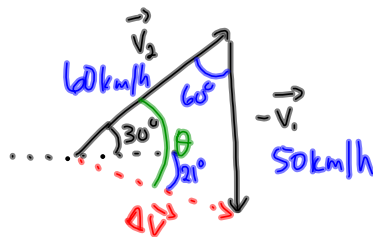
mp/97

$$\vec{V_1} = 50 \frac{km}{h} [N]$$

$$\vec{V_2} = 60 \frac{km}{h} [N60°E]$$

$$\Delta \vec{V} = ?$$

$$\Delta \vec{V} = \vec{V_2} - \vec{V_1}$$

Law of Cosines

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

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

$$\boxed{c \doteq 56 \ km/h}$$

Law of Sines

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

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

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

$$\boxed{\theta \doteq 51°} \quad -30°$$

$$= 21°$$

$$\boxed{\Delta \vec{V} = 56 \ km/h \ [E \ 21° \ S]}$$

$$51° - 30° = 21°$$

$$\boxed{PP/98/13-15}$$

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   FBD, Newton's 2nd Law ($\vec{F}_{net} = m\vec{a}$)
- incline problems
- subtraction of vectors   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.