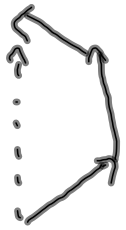
TEST - Wed

- add vectors
  - draw a scale diagram
  - solving mathematically
    - 2 vectors ⇒ draw Δ
    - 3 or more vectors ⇒ components (x-y chart)



- Subtract vectors (from a FBD)
- components
- relative motion problems
- forces at angles ⇒ FBD
- inclines ⇒ FBD

$\vec{F}_{net} = m\vec{a}$

$F_f = \mu F_N$

$F_g = mg$

+ Kinematics eq.

Math tools

$c^2 = a^2 + b^2$

SOH|CAH|TOA

You need to know

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

$\frac{a}{\sin A} = \frac{b}{\sin B}$ Law of Sines

Will be given

Book:

§10-1

§3-2, 3-3

Additional Review:

① NSEXAMS

② MC-GRAW HILL

Subtracting Vectors

We need to be able to subtract vectors $\Rightarrow \Delta\vec{V} = \vec{V}_2 - \vec{V}_1$

Think about: $5 - 2 = 5 + (-2)$

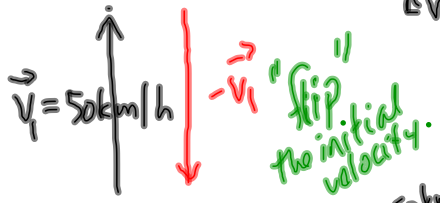
$\vec{V}_2 - \vec{V}_1 = \vec{V}_2 + (-\vec{V}_1)$

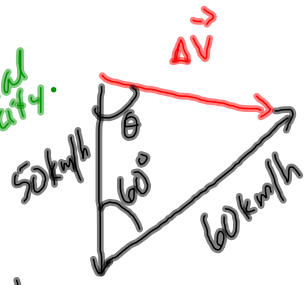
mp|97

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

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

$\Delta\vec{V} = 60\text{km/h}[N60°E] + 50\text{km/h}[S]$





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

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

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

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

$\Delta\vec{V} = 56\text{km/h}[S69°E]$

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

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

$\theta = 69°$

- PP|98|13-15 ← subtraction
- p528|23,24,25
- p626|33,36

] REVIEW