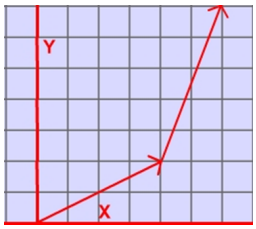
Vectors & Components

Objective:

To understand vectors and vector components.



Vectors

Vector quantity - magnitude & direction

Ex. Velocity, displacement, forces, acc.

Rep by Arrows

Scalar quantity - magnitude

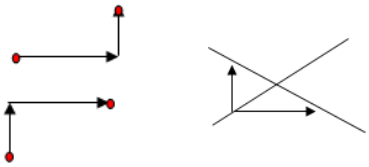
Ex. Speed, time, mass

HyVee

LHS

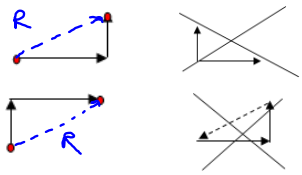
Adding Vectors .....Vector Diagram

"Head to Tail" method

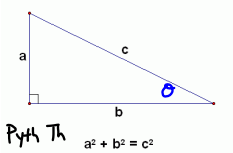


Resultant Vectors

- two vectors combined



Right Triangles



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

8.2 bks @ 76° W. of N.

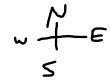
$\tan\theta = \frac{opp}{adj}$

$-1\tan\theta = \frac{8}{2}$

Find the resultant:

70 mi/hr North (plane)

20 mi/hr West (wind)



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

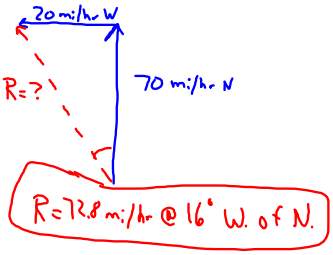
$20^2+70^2=c^2$

$c = 72.8$ mi/hr

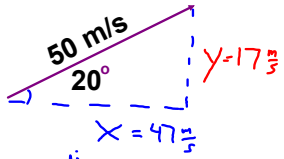
$-\tan\theta = \frac{opp}{adj}$

$-1\tan\theta = \frac{20}{70}$

$\theta = 16°$



Vector Components



$Y = 17 \frac{m}{s}$

$X = 47 \frac{m}{s}$

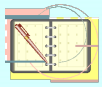
$\sin\theta = \frac{opp}{hyp}$

$\sin 20 = \frac{y}{50 \frac{m}{s}}$

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

$\cos 20 = \frac{x}{50 \frac{m}{s}}$

Assignments . . .



- Begin Chapter 2 #1 - 8