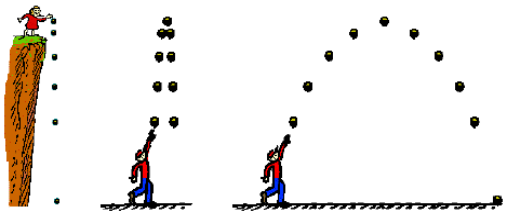
Projectiles

Types of Projectiles



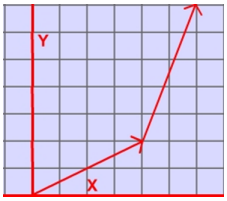
Vectors

Objective:

Differentiate between scalar & vector quantities.

Be able to draw vector diagrams.

Calculate the magnitude & direction of a resultant vector.



Vectors

Vector quantity - magnitude & direction

Ex. Velocity, acc, displacement, forces

Rep. by arrows

Scalar quantity - magnitude

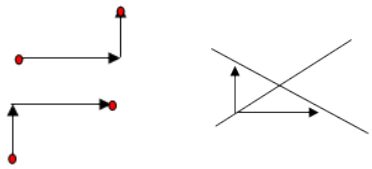
Ex. Speed, distance, time

HyVee 8bk W. 2bk N.

LHS

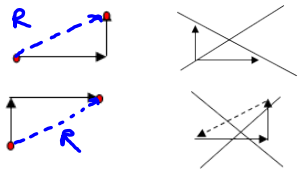
Adding Vectors .....Vector Diagram

"Head to Tail" method

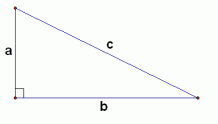


Resultant Vectors

- two vectors combined



Right Triangles - Pythagorean Theorem



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

$2^2 + 8^2 = c^2$

$4 + 64 = 68 = c^2$

$\sqrt{68} = c$

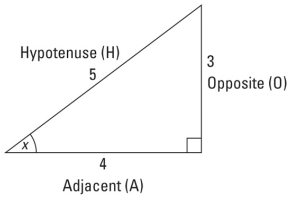
$8.2 = c$

8 bks W

R = 8.2 bks

2 bks N

Right Triangles - Soh Cah Toa



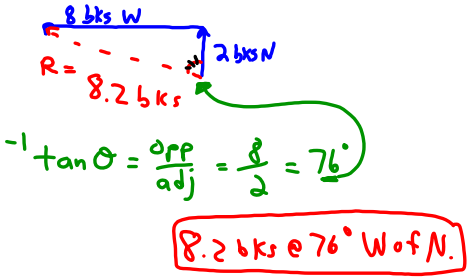
$$\sin(A) = \frac{\text{opposite side}}{\text{hypotenuse}}$$

$$\cos(A) = \frac{\text{adjacent side}}{\text{hypotenuse}}$$

$$\tan(A) = \frac{\text{opposite side}}{\text{adjacent side}}$$

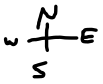
Trig functions relate the angles of a triangle to the lengths of its sides.

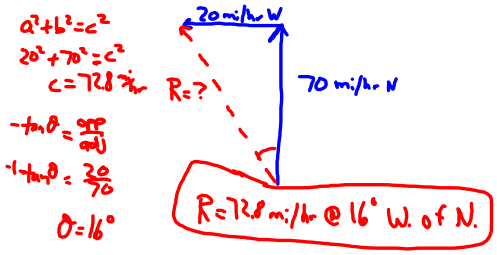
Finding Direction



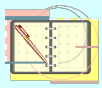
Calculate the magnitude & direction of the resultant vector:

70 mi/hr North (plane)
20 mi/hr West (wind)





Assignments . . .



- Begin Chapter 2 #1 - 4