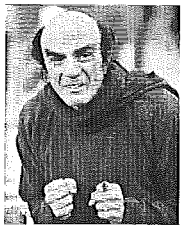
Name _____ Hour _____



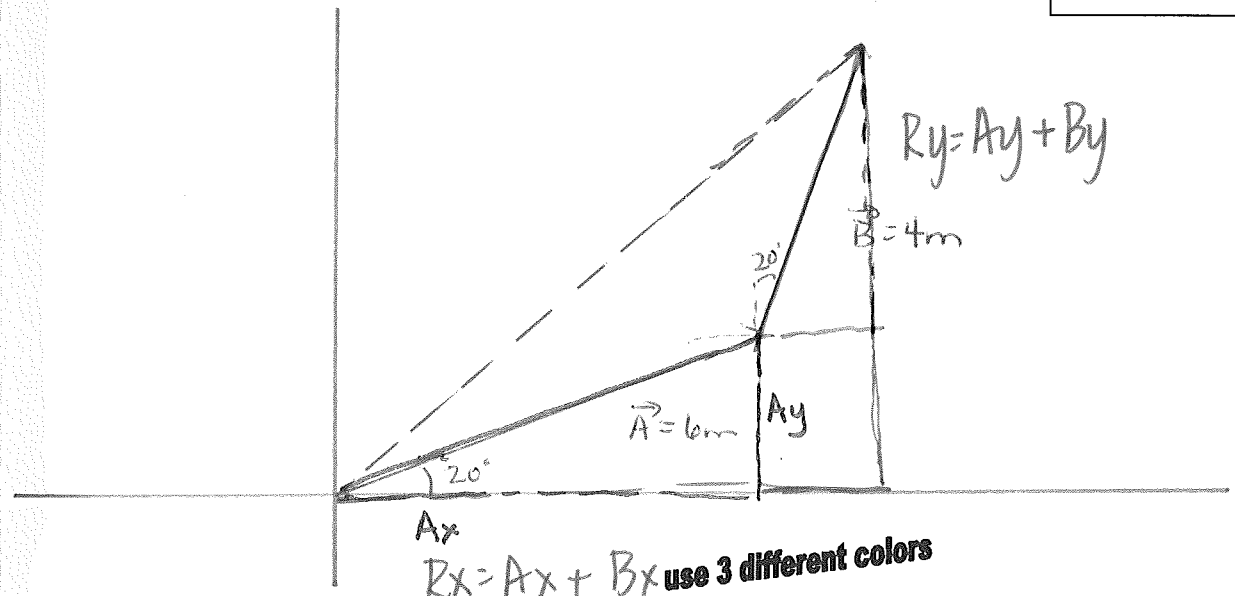
Method #2: Adding Vectors By Resolution into Components

Example 2: Gargamel is trying to catch the Smurfs. He travels at 6 m at 20° N of E, and then 4 m at 20° E of N. Find his displacement.

a) graphically.

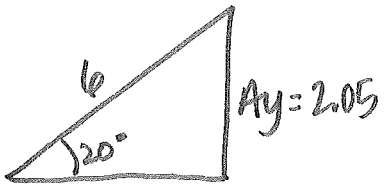
Scale:

R = 9.1m at 40° N of E



b) by resolution into components.

R = 9.1m at 39.7° N of E



Ax = 5.64

Ay:

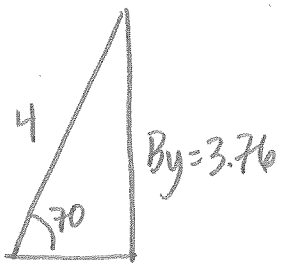
$\sin 20° = \frac{Ay}{6}$

Ay = 2.05

Ax:

$\cos 20° = \frac{Ax}{6}$

Ax = 5.64



Bx = 1.37

By:

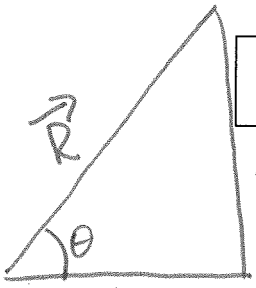
$\sin 70° = \frac{By}{4}$

By = 3.76

Bx:

$\cos 70° = \frac{Bx}{4}$

Bx = 1.37



Ry = Ay + By

(2.05) + (3.76)

Ry = 5.81

Rx = Ax + Bx

Rx = (5.64) + (1.37)

Rx = 7.01

Imagnitude:

$\vec{R}^2 = Rx^2 + Ry^2$

$\vec{R}^2 = (7.01)^2 + (5.81)^2$

$R^2 = 82.9$

R = 9.1m

direction:

$\tan\theta = \frac{Ry}{Rx} = \frac{5.81}{7.01}$

$\tan\theta = .829$

$\theta = 39.7°$