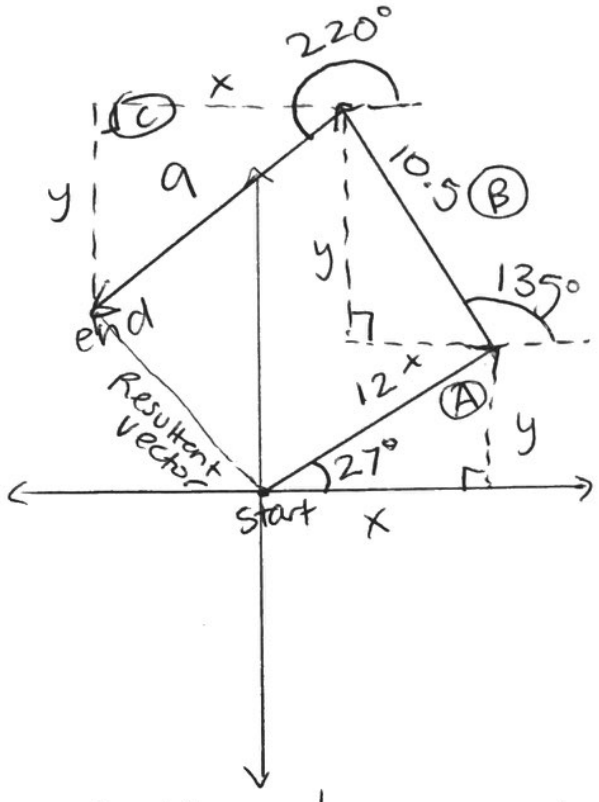
Adding Vectors:

Find magnitude and direction of resultant vector.



	x	y
Vector A	$12 \cos 27 =$ 10.7	$12 \sin 27 =$ 5.4
Vector B	$10.5 \cos 135 =$ -7.4	$10.5 \sin 135 =$ 7.4
Vector C	$9 \cos 220$ -6.9	-5.7
Resultant Vector	x_T -3.6	y_T 7.1

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

$$(-3.6)^2 + (7.1)^2 = c^2$$

$c = 7.96$ ← magnitude

Step 1:

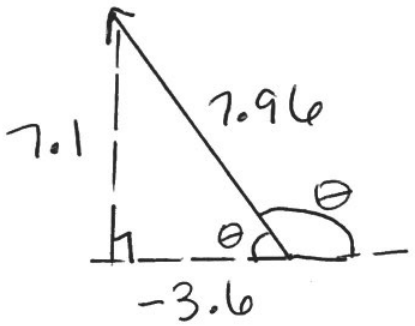
Use sin and cos to solve for the x and y components of each vector.

Step 2:

Find total x (x_T) and total y (y_T) by adding x's then adding y's.

Step 3:

Use pythagorean theorem to find magnitude of Resultant vector



Step 4:

Find angle of resultant vector using Inverse SOHCAHTOA

Find inside θ first:

$\tan^{-1}\left(\frac{7.1}{-3.6}\right)$

63°

Subtract

180° - 63° =

117°

Final answer:

Resultant vector is

7.96 @ 117°