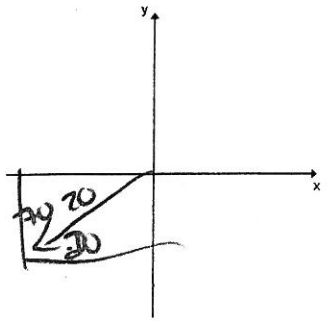
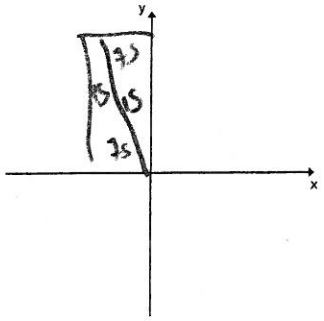
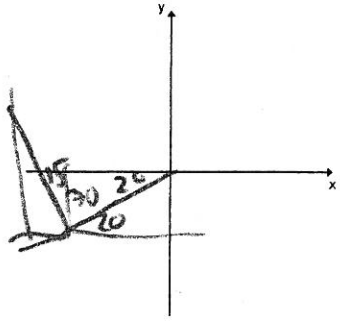
Name_____ HWK Resultant Vectors 2

A resultant vector is typically the result of performing operations on one or more vectors.

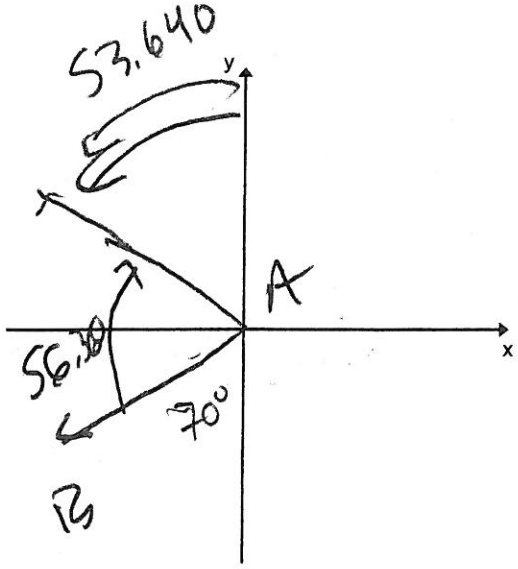
Today, we will focus on vector addition. Vector addition will add two or more vectors to create either a vector triangle (in the case of addition of two vectors) or a vector polygon (the addition of more than two vectors)

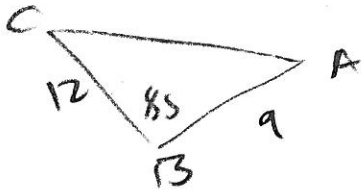
We will focus on vector addition today.

Vector AB has a heading of 200°and a magnitude of 9 cm Vector BC has a heading of 105° and a magnitude of 12 cm.

Draw Vector AB as if A starts at the origin	Draw Vector BC as if B starts at the origin	Draw Vector Triangle ABC as if A starts at the origin
		

Draw vector AC as if A starts at the origin





$$AC = \sqrt{12^2 + 9^2 - 2(12)(9)\cos 85}$$

$$= 14.359$$

$$A = \cos^{-1}\left(\frac{9^2 + 14.359 - 12^2}{2(9)(14.359)}\right)$$

$$\approx 56.360^\circ$$

What is the measure of angle ABC? 85 (Hint rectangles and alternate interior angles help with this task sometimes.)

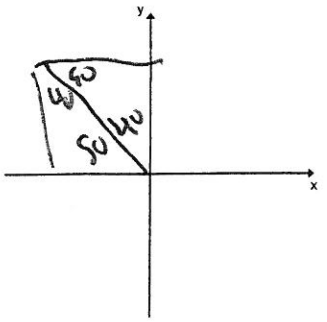
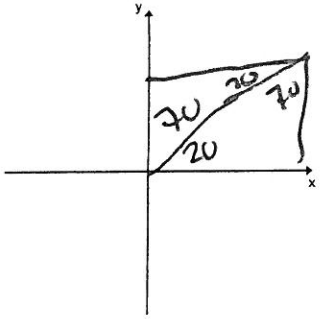
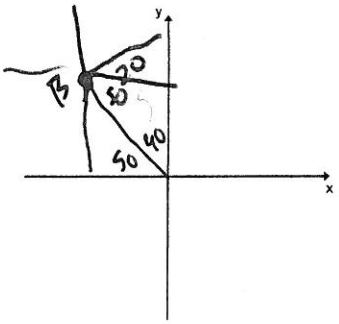
What is the length of Vector AC? 14.359 (hint SAS and Law of Cosines is typically how you can find this)

The resultant vector AC has a heading of 143.640 and a magnitude of 14.359 The resultant vector AC has a bearing of 306.360

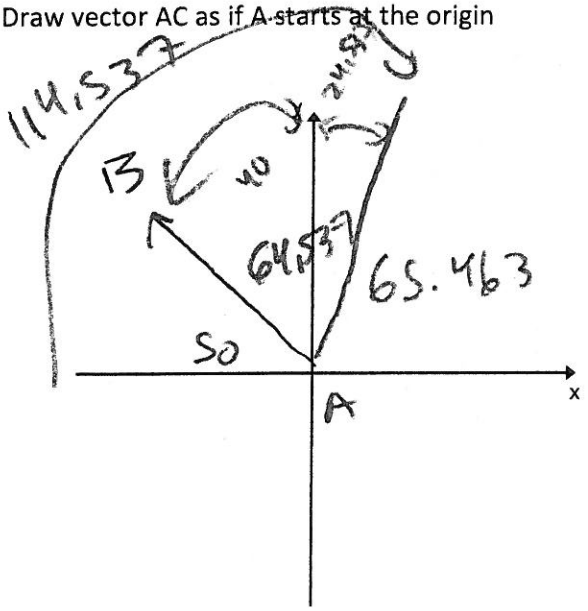
What quadrant did point C end up in? 2

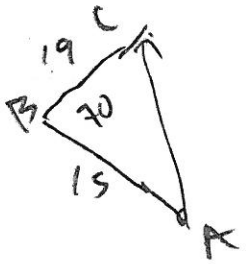
We will focus on vector addition today.

Vector AB has a bearing of 320°and a magnitude of 15 cm Vector BC has a Bearing of 70° and a magnitude of 19 cm.

Draw Vector AC as if A starts at the origin	Draw Vector BC as if B starts at the origin	Draw Vector Triangle ABC as if A starts at the origin
		

Draw vector AC as if A starts at the origin





$AC = \sqrt{19^2 + 15^2 - 2(19)(15)\cos 70}$

≈ 19.775

$\cos^{-1}\left(\frac{15^2 + 19.775 - 19^2}{2(15)(19.775)}\right)$

≈ 64.537

What is the measure of angle ABC? 70° (Hint rectangles and alternate interior angles help with this task sometimes.)

What is the length of Vector AC? 19.775 (hint SAS and Law of Cosines is typically how you can find this)

The resultant vector AC has a heading of 65.463 and a magnitude of 19.775 The resultant vector AC has a bearing of 24.537°

What quadrant did point C end up in? 1

A resultant vector is typically the result of performing operations on one or more vectors.

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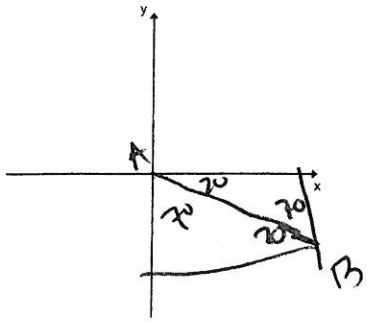
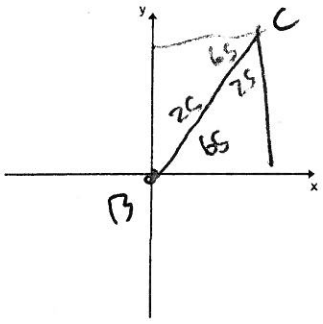
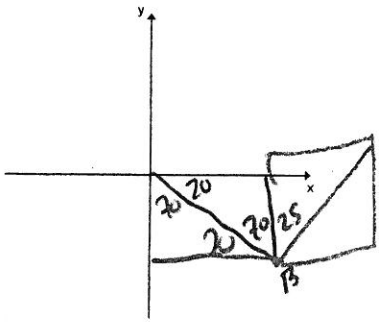
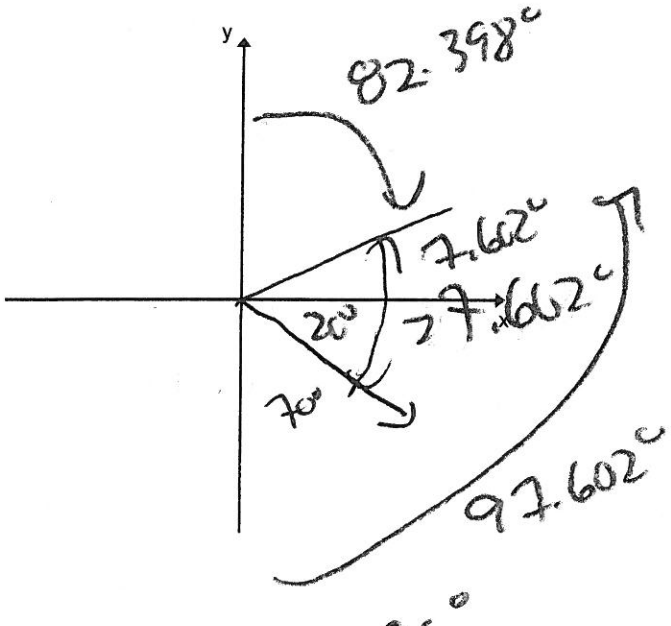
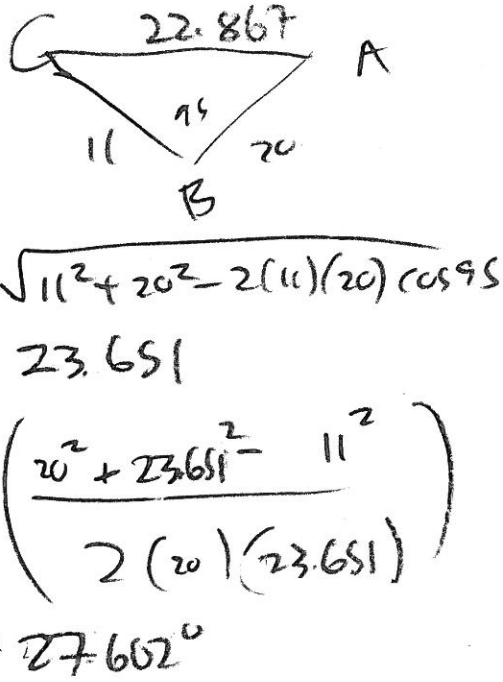
We will focus on vector addition today.

Vector AB has direction S 70° E and a magnitude of 20 cm Vector BC has direction of E 65° N and a magnitude of 11 cm.

Draw Vector AB as if A starts at the origin	Draw Vector BC as if B starts at the origin	Draw Vector Triangle ABC as if A starts at the origin
		

Draw vector AC as if A starts at the origin





What is the measure of angle ABC? 95° (Hint rectangles and alternate interior angles help with this task sometimes.)

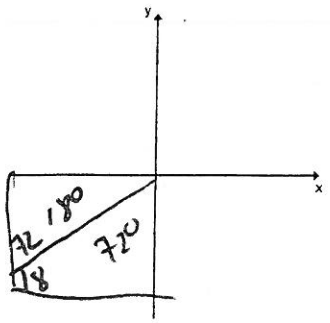
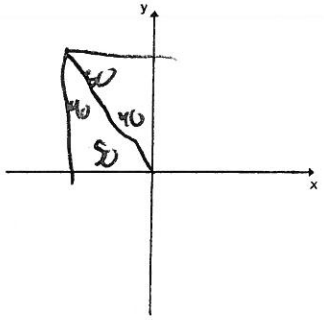
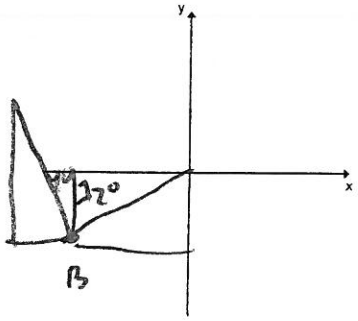
What is the length of Vector AC? 23.651 (hint SAS and Law of Cosines is typically how you can find this)

The resultant vector AC has a heading of 7.662° and a magnitude of 23.651 The resultant vector AC has a bearing of 82.398°

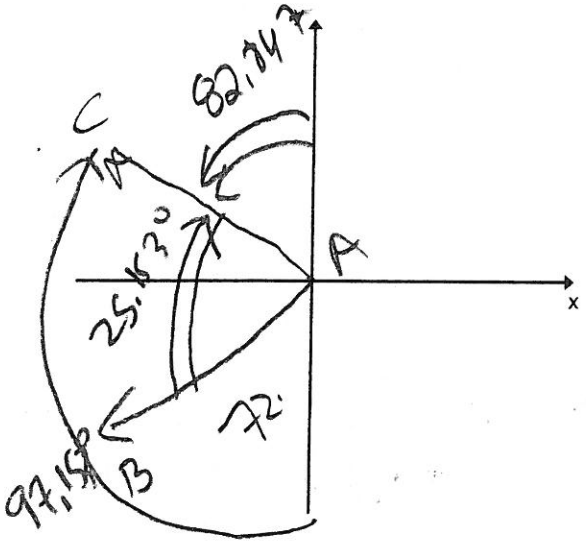
What quadrant did point C end up in? 1

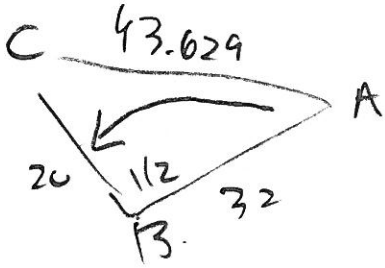
We will focus on vector addition today.

Vector AB has direction 72° West of South and a magnitude of 32 cm Vector BC has direction 50° North of West and a magnitude of 20 cm.

Draw Vector AB as if A starts at the origin	Draw Vector BC as if B starts at the origin	Draw Vector Triangle ABC as if A starts at the origin
		

Draw vector AC as if A starts at the origin





$$AC = \sqrt{20^2 + 32^2 - 2(20)32\cos 112}$$

$$\approx 43.629$$

$$\cos^{-1}\left(\frac{32^2 + 43.629^2 - 20^2}{2(32)(43.629)}\right) \approx 25.153$$

What is the measure of angle ABC? 112 (Hint rectangles and alternate interior angles help with this task sometimes.)

What is the length of Vector AC? 43.629 (hint SAS and Law of Cosines is typically how you can find this)

The resultant vector AC has a heading of 82.847 and a magnitude of 43.629 The resultant vector AC has a bearing of 277.153

What quadrant did point C end up in? 2