Lesson 56 Algebra 2 and Trig

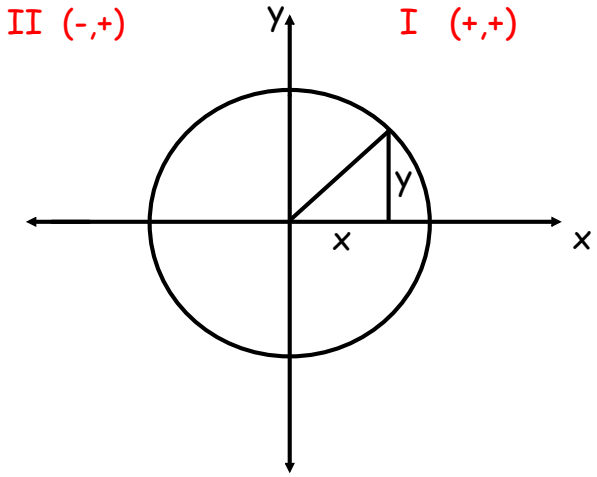
Aim: How do we define trig functions by quadrants?

HW: p.372 # 6,8,14,16,18,20,22,24,26,27

Do Now: A point on the terminal side of an acute angle is (4,3)

a) Draw the angle in standard position

b) Find the distance between the point and the origin



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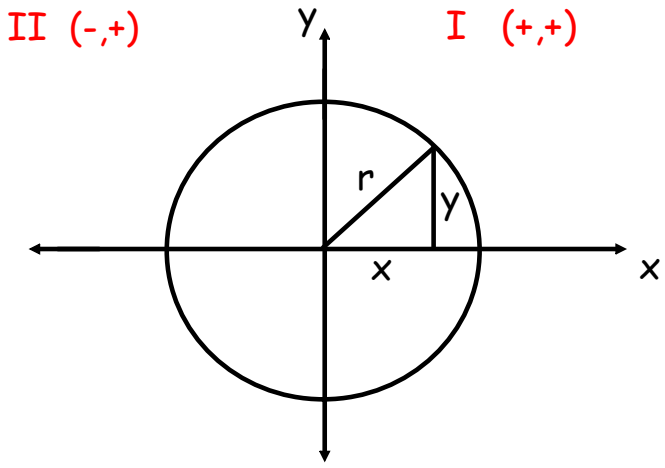
In general, the horizontal side of a triangle is x, the vertical side of a triangle is y and the hypotenuse is r (radius)



$\sin\theta = \frac{y}{r}$ $\cos\theta = \frac{x}{r}$ $\tan\theta \frac{y}{r}$

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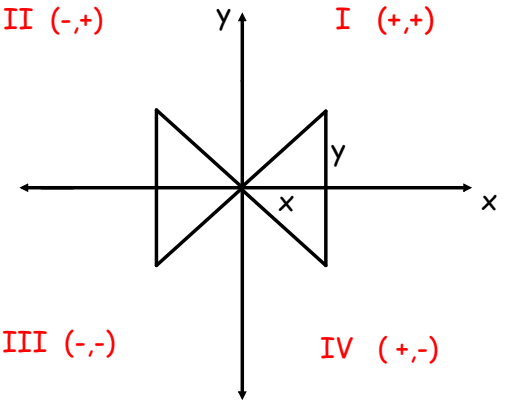

Quadrant I	sin	cos	tan
Quadrant II	sin	cos	tan
Quadrant III	sin	cos	tan
Quadrant IV	sin	cos	tan

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Although we used to say there is no negative distance, in trigonometry there are negative measurements which depend on the position of the terminal side.

But there is **no negative radius**.

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We can use the saying
All **S**tudents **T**ake **Classes**" to remember **ASTC**.
Which reminds us that:

In quadrant I **A**ll three functions are positive,

In quadrant II **S**ine is positive

In quadrant III **T**angent is positive

In quadrant IV **C**osine is positive

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Determine the signs of the following functions:

a) sin 30

b) sin 200

c) sin 140

d) cos 225

e) cos 345

f) cos 195

g) tan 200

h) tan 300

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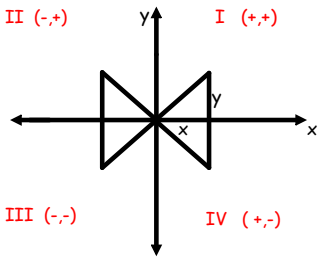
Find the correct quadrant when:



a) $\cos\theta > 0$

b) $\cos\theta < 0$

c) $\sin\theta > 0$ and $\cos\theta > 0$

d) $\sin\theta < 0$ and $\cos\theta < 0$

e) $\sin\theta > 0$ and $\cos\theta < 0$

f) $\cos\theta > 0$ and $\tan\theta < 0$

g) $\tan\theta > 0$ and $\sin\theta < 0$

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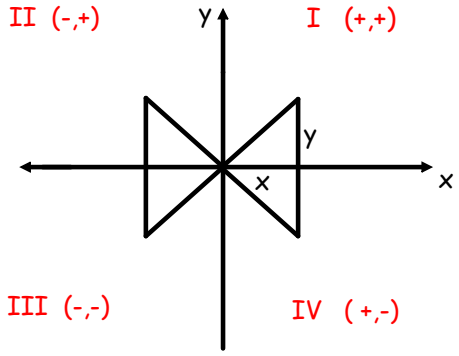

$-6^2 + y^2 = 10^2$

$36 + y^2 = 100$

$y^2 = 64$

$y = 8$

Find

a. y coordinate (-6/10, y) $y = 8$

b. $\cos\theta$ -6/10

c. $\sin\theta$ 8/10

d. $\tan\theta$ 8/−6

Angle is therefore in quadrant II

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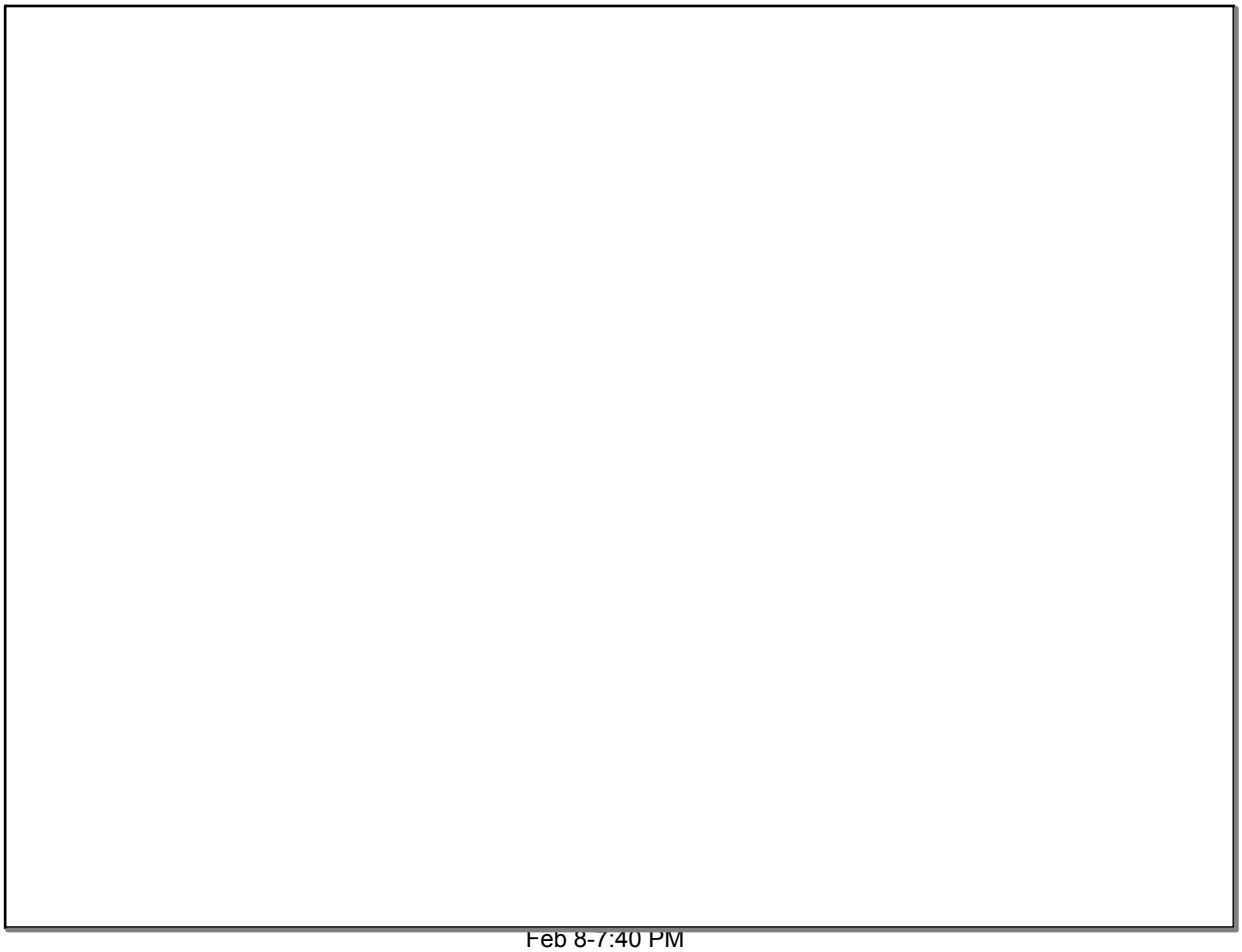

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