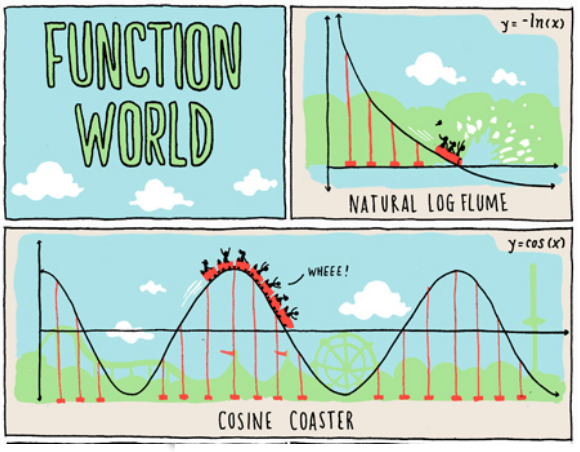
Pick up the Warm Up



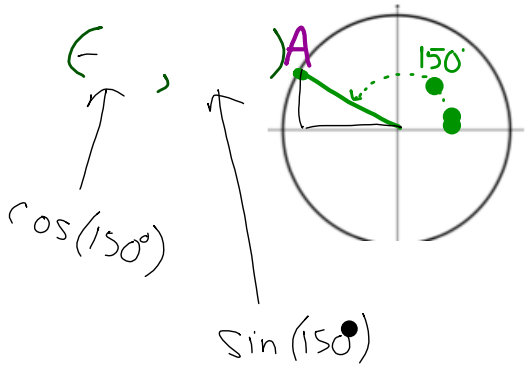
HW help :)

1. Summarize from Yesterday Complete the following.....

On a Unit Circle, the *sine* value tells you the vertical distance fromt the x-axis.

The *cosine* value tells you the horizontal distance from the y-axis

2. Find the coordinates of Point A on the Unit Circle if the angle of rotation your answer to 3 decimal places.



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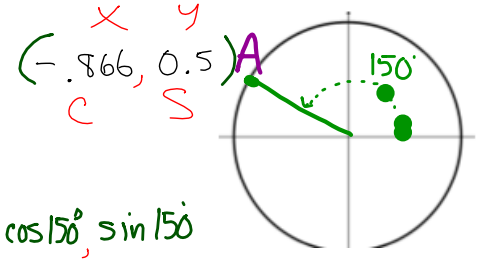
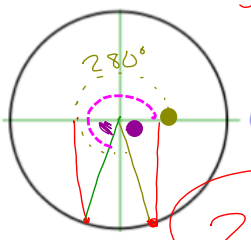


3. Name another rotation angle with the same **sine** value as 280°.



$\sin(280) = -.9$

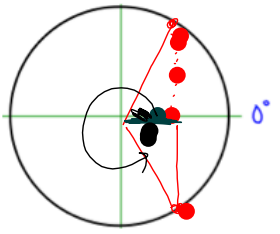
$\sin(260) = -.9$

260°

180 + 80 = 260°

360 − 280 = 80°

Name another rotation angle with the same **cosine** value as 70°

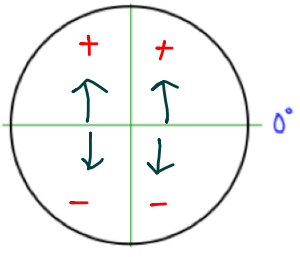


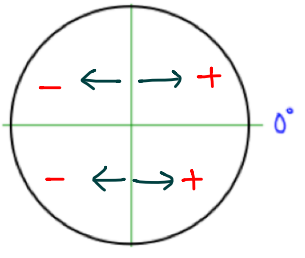
Positive cosine value

$\cos(70) =$

$\cos(290) =$

360° − 70° = 290°

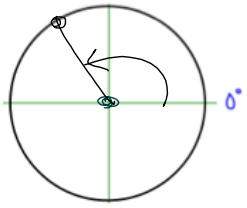




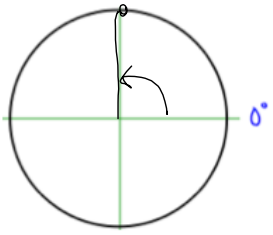
4. Sketch the following:

sin 90°

Sketch an angle with a negative cosine and a positive sine

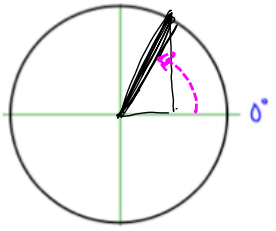


Sketch an angle with a sine value of 1 (and a cosine value of 0).

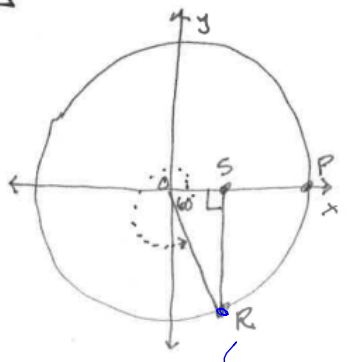


vertical height of +1

Sketch an angle that has a cosine of about 0.5 and sine value of about 0.9



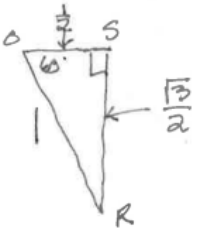
7-55



(,)

a) If ∠ROS is 60°, then the rotation angle is 300°

b) If OR = 1 (a UNIT CIRCLE)



57

$$\left(\frac{1}{8}\right)^{2x-3} = \left(\frac{1}{2}\right)^{x+3}$$

$\frac{1}{2^3}$

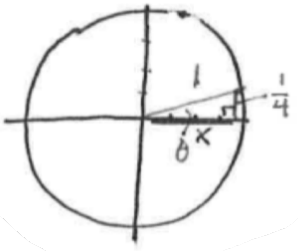
$$\left(2^{-3}\right)^{(2x-3)} = \left(2^{-1}\right)^{x+3}$$

$$2^{-6x+9} = 2^{-x-3}$$

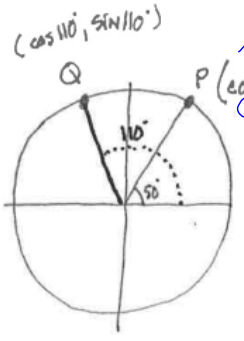
$$-6x+9 = -x-3$$

7-53 If $\sin\theta = \frac{1}{4}$, find exact coordinates of a point on the UNIT circle.

$\sin^2\theta + \cos^2(\theta) = 1$



7-54



x, y

C S

↑ exact

→ so P is (0.643, 0.766)

→ so Q is (−.342, 0.940)

↑ Approximate

7-60 Rip Off Rentals
$25 per day, 50¢ per mile

m = # miles
d = # days

Teacher will charge you

mile	1	2	3	4	...
charge	3¢	6	12	24	..

a) Cost = $y = 25d + 0.5m$

Cost = $y = 0.03(2)^{m-1}$

b) 2 day trip, 10 miles

Rip off Rentals → $y = 25(2) + 0.5(10) = \$55$

Teacher → $y = 0.03(2)^{10-1} = \$15.36$

20 miles

$y = 25(2) + .5(20) = \$60$

$y = .03(2)^{20-1} = \$15,728$

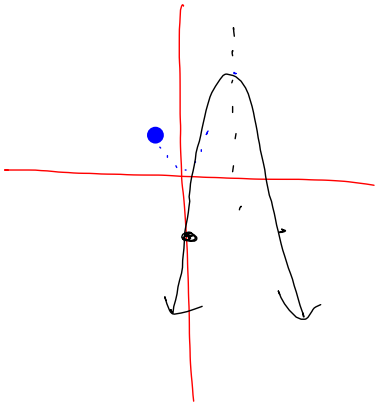
100 mi

$y = 25(2)$

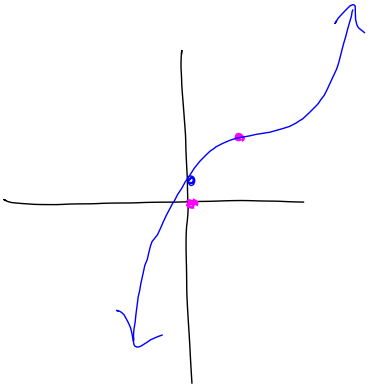
$y = .03(2)$

$

58 $y = -2(x-2)^2 + 3$



$y = (x-1)^3 + 3$

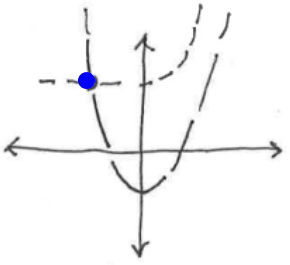


7-59 $3^x + 5 = x^2 - 5$

3^x: looks exponential

$x^2 - 5$: looks quadratic

Best bet is to solve graphically with your calculator (should draw a sketch)



Intersect at $(-3.167, 5.031)$

So the solution to equation is $x = -3.167$

7-67 $y = x^2 + 4x - 17$ y-intercept $(0, -17)$

x-intercept ($y = 0$) $0 = x^2 + 4x - 17$

can't be factored

Use quadratic formula $a = 1$, $b = 4$, $c = -17$

$$x = \frac{-(4) \pm \sqrt{(4)^2 - 4(1)(-17)}}{2(1)}$$

$$= \frac{-4 \pm \sqrt{84}}{2}$$

$$= \frac{-4 \pm 2\sqrt{21}}{2}$$

$$= \frac{2(-2 \pm \sqrt{21})}{2}$$

$$= -2 \pm \sqrt{21}$$

the two x-intercepts are

$(-2 + \sqrt{21}, 0)$ and

$(-2 - \sqrt{21}, 0)$

Today :

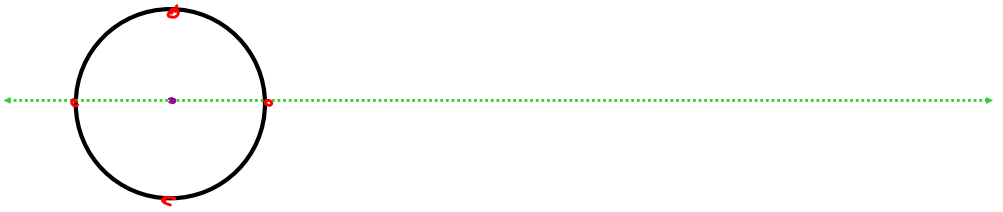
Analyze **The Cosine Function**

$$f(\theta) = \cos(\theta)$$

and solve related problems

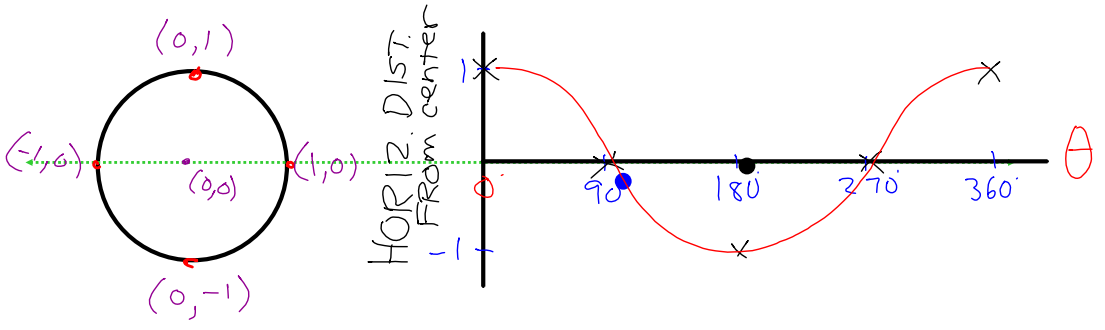
GDC

Draw neatly

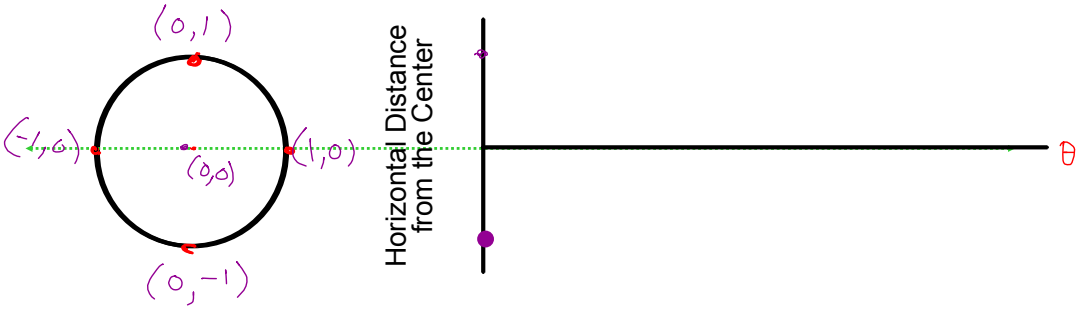


label coordinates

Draw

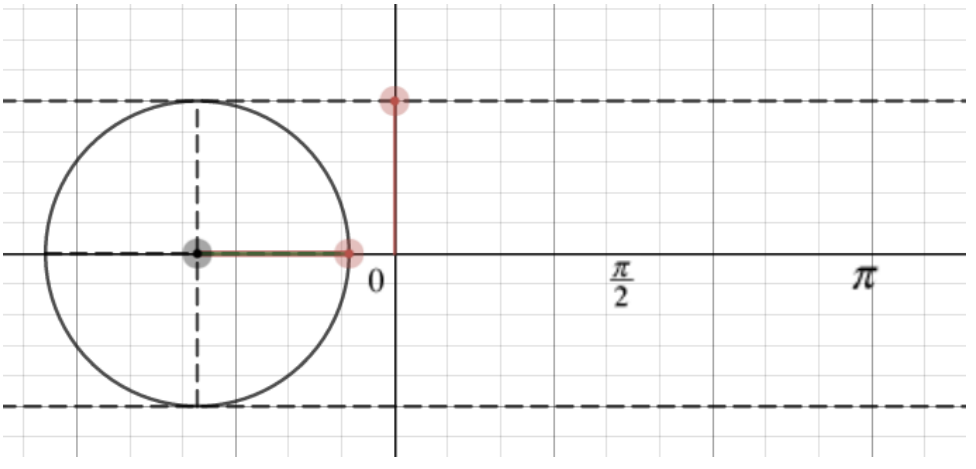


Draw



axis of symmetry?

θ – axis intercepts



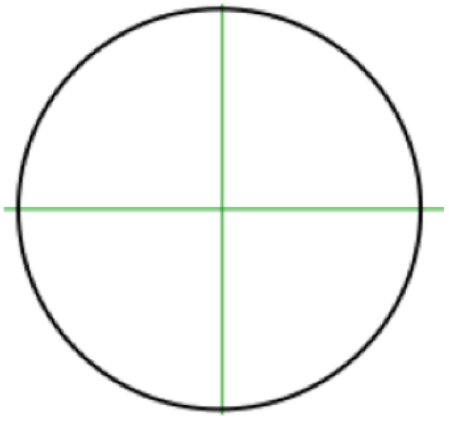
Core Problem

7-51

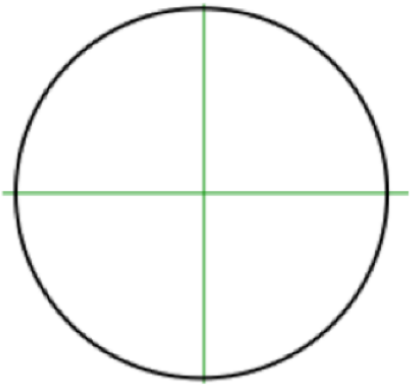
- neat diagram
- show work
- Mr. C to check answers when done

Screamer, 27 horizontal feet away from the center.

What was the Angle of rotation ??



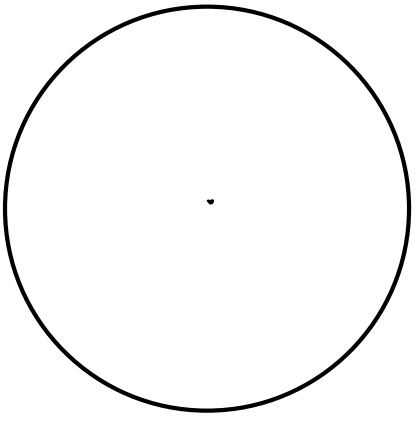
Is there more than one possibility ?



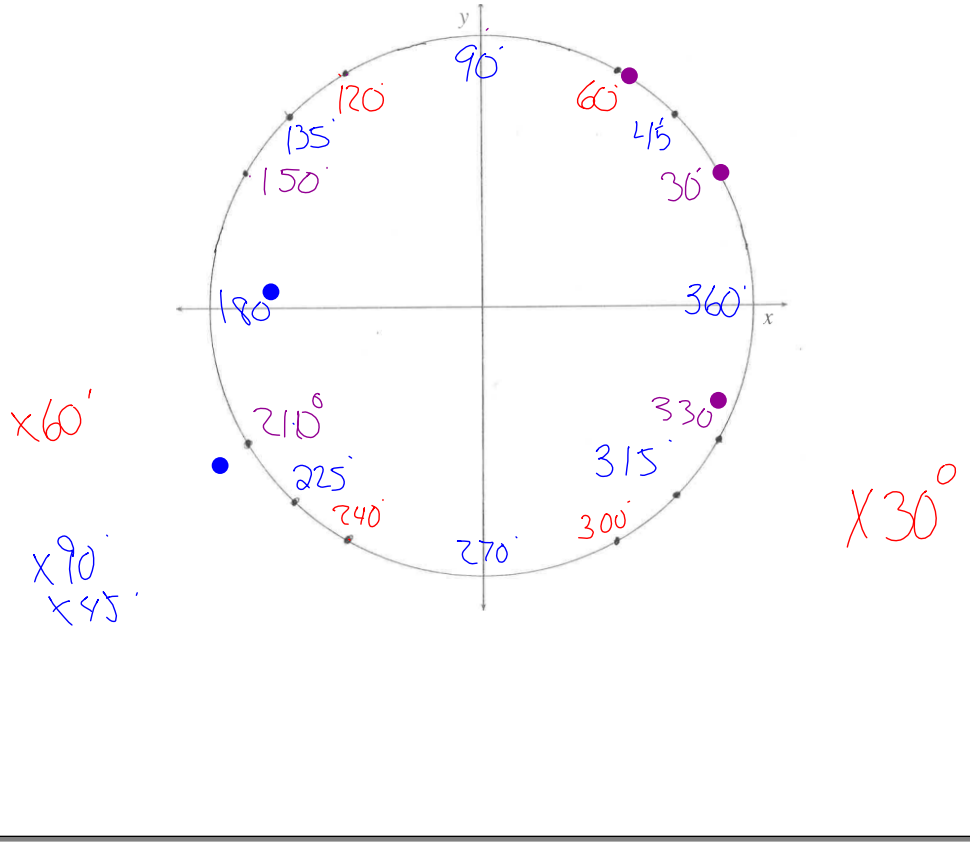
The four possibilities would be:

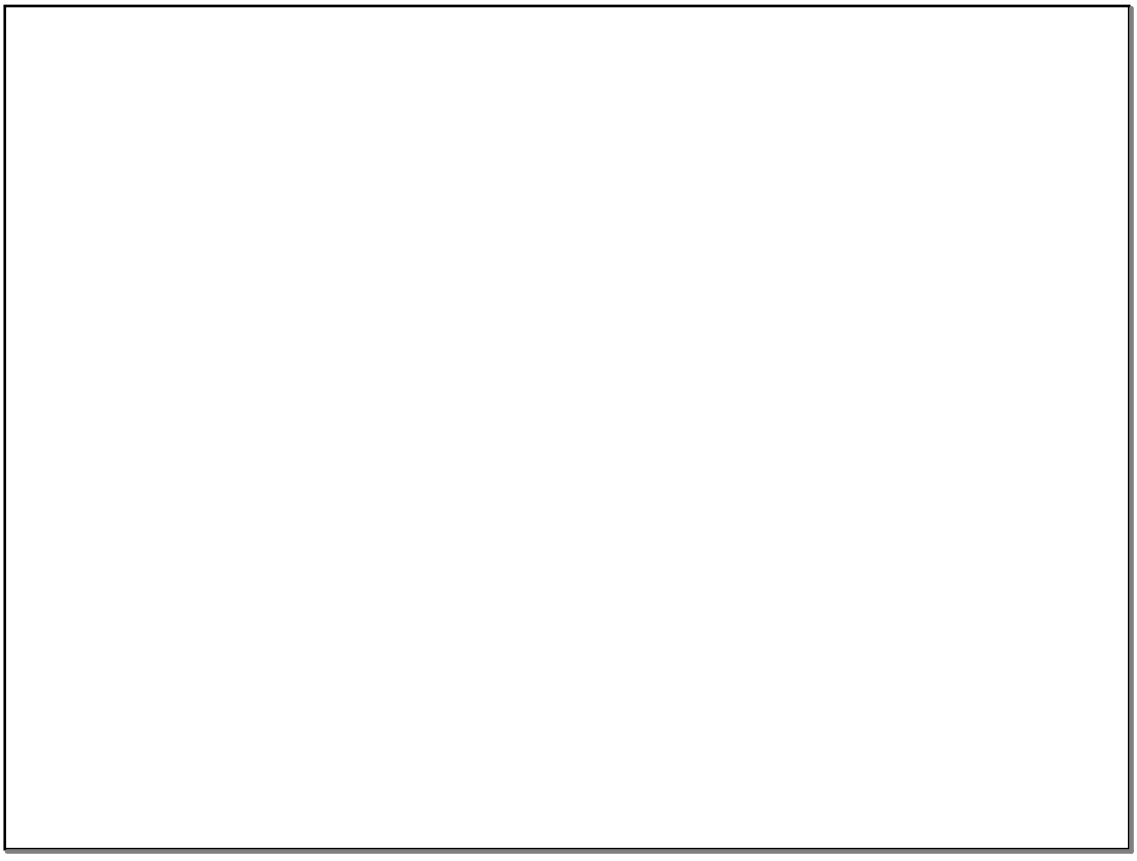
74.3 , 105.7 , 254.3 , and 285.7

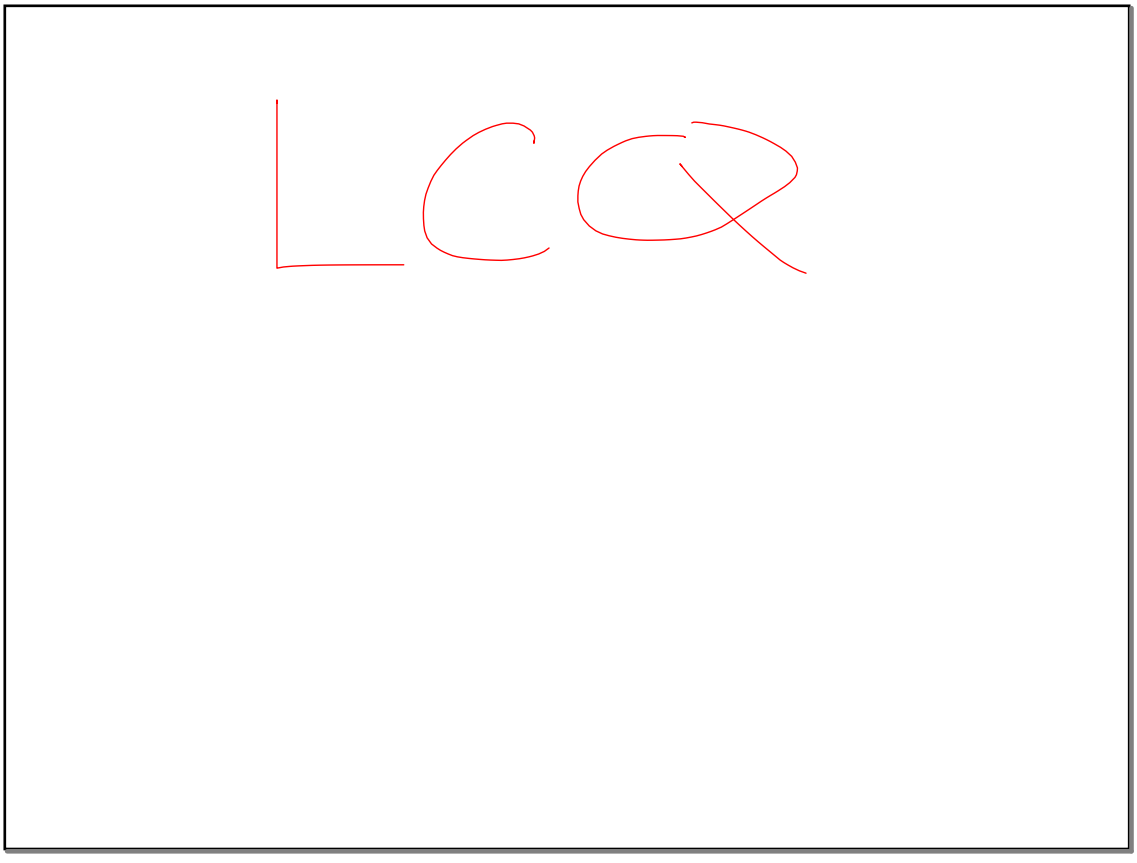
Prep work for upcoming lessons



1. Draw a Unit Circle.
2. w/ horizontal axis.
3. Add tic marks and angles on the INSIDE for :
   a) X 90
   b) X 45
   c) X 60
   d) X 30






LCR

Assignment:

7....62-65,68ab ,69