If an angle is measured in degrees you can find a coterminal angle by..

Adding or Subtracting 360° or any multiple of 360°.

If an angle is measured in radians you can find a coterminal angle by..

Adding or Subtracting 2π or any multiple of 2π.

Two angles, measured in degrees, are coterminal if....

the distance between them is a multiple of 360°

Two angles, measured in radians, are coterminal if....

the distance between them is a multiple of 2π

o

Find the measure of an angle between 0 and 2π that is coterminal to the given angle.

1. $\theta = \frac{41\pi}{3}$

Keep subtracting 2π in the form of 6π/3 until the angle is between 0 and 2π

$\frac{41\pi}{3} - \frac{6\pi}{3} = \frac{35\pi}{3}$

$\frac{35\pi}{3} - \frac{6\pi}{3} = \frac{29\pi}{3}$

$\frac{29\pi}{3} - \frac{6\pi}{3} = \frac{23\pi}{3}$

$\frac{23\pi}{3} - \frac{6\pi}{3} = \frac{17\pi}{3}$

$\frac{17\pi}{3} - \frac{6\pi}{3} = \frac{11\pi}{3}$

$\frac{11\pi}{3} - \frac{6\pi}{3} = \frac{5\pi}{3}$

2. $\theta = -\frac{57\pi}{4}$

Keep adding 2π in the form of 8π/4 until the angle becomes positive (is between 0 and 2π)

Adding 8π/4 a bunch of times is like adding a multiple of 8π/4. The first multiple of 8π/4 that is greater than 57π/4 is 64π/4

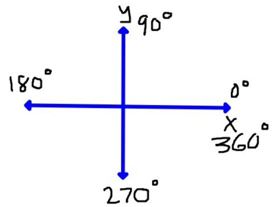
$-\frac{57\pi}{4} + \frac{64\pi}{4} = \frac{7\pi}{4}$

In which quadrant or on which axis does the terminal side of each angle lie?

1. θ = - 1040°

add 360° three times and get 40°. This is in

Quadrant I



2. θ = 975°

subtract 360° twice and get 255°. This is in

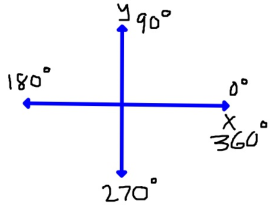
Quadrant III

In which quadrant or on which axis does the terminal side of each angle lie?

3. $\theta = 4230°$

subtract 360° 11 times and get 270°. This is on the

Neg y-axis



4. $\theta = -1942°$

add 360° 6 times and get 218°. This is in

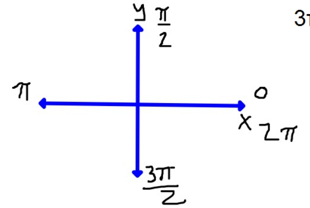
Quadrant III

In which quadrant or on which axis does the terminal side of each angle lie?

5. $\theta = -\frac{23\pi}{8}$ add 2π in the form 16π/8

add 16π/8 twice and get 9π/8. This is in

Quadrant III



6. $\theta = \frac{11\pi}{2}$ subtract 2π in the form 4π/2

subtract 4π/2 twice and get 3π/2. This is on

Neg y-axis

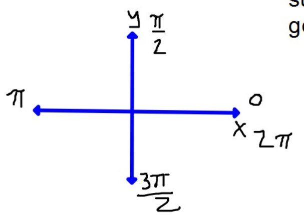
In which quadrant or on which axis does the terminal side of each angle lie?

7. $\theta = 37\pi$

Every odd number of π is on the

Neg x-axis

because if you start at 0 and keep adding 2π you'll end up on the pos x-axis (even number of π). Since an odd number of π is always just π away from and even number of π, you will always end up the neg x-axis for an odd number of π.



8. $\theta = \frac{43\pi}{6}$ subtract 2π in the form 12π/6

subtract 12π/6 three times and get 7π/6. This is in

Quadrant III

Hwk #5: Sec 13-2

Due tomorrow

Page 722

Problems 1-3, 12-15, 39, 40, 45 - 48

Short Quiz over Sections 13-2 and 13-3
Tuesday

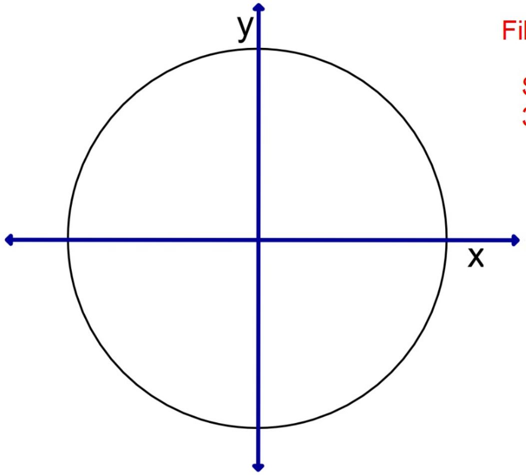
review is already on my blog

The Unit Circle:

- Center is the origin
- Radius = 1
- Used to find the EXACT value of Sinθ, Cosθ, and Tanθ without using a calculator.
- Uses the Special Right Triangle relationships.

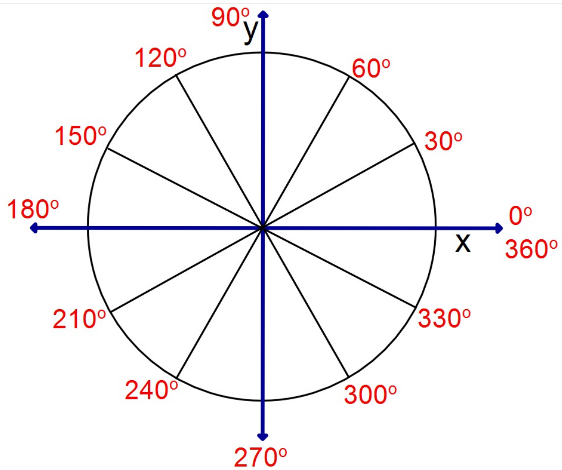
The unit circle is used to find the EXACT value of Sinθ, Cosθ, and Tanθ using the special right triangles.

This means all the angles on the unit circle are related to either 30°, 60°, or 45°.



Fill in the angles with degrees.

Starting with angles related to 30°-60°-90°

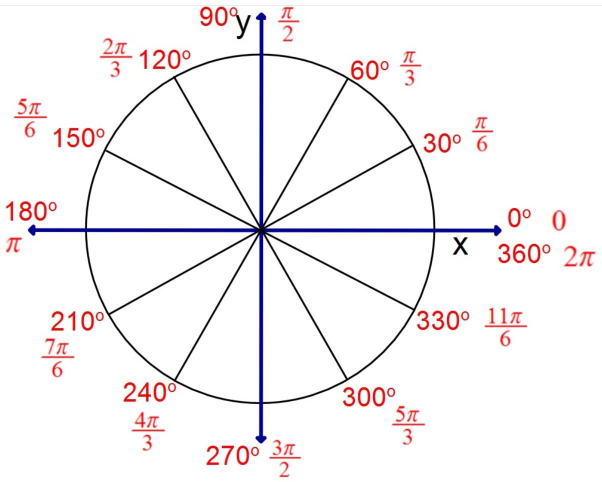


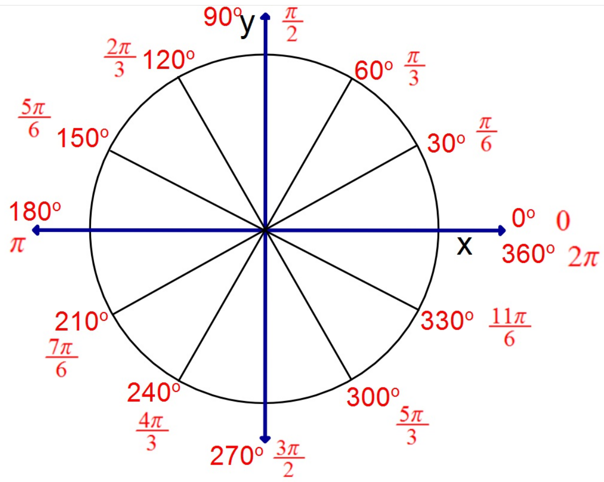
Now fill in with Radians. Starting with the 30°-60°-90° angles you just filled in.

$$30° = 30° \cdot \frac{\pi}{180°}$$

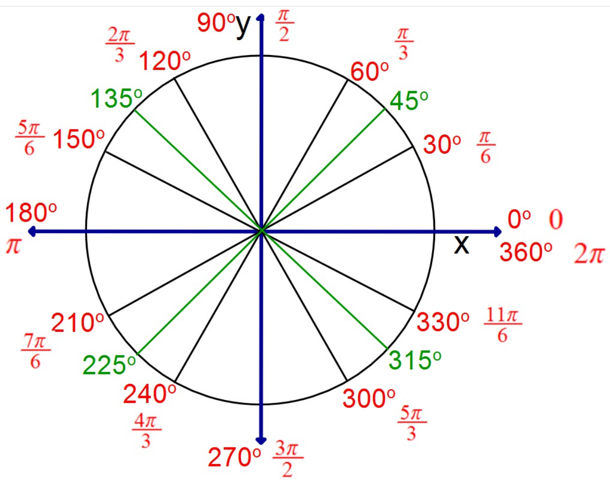
$$30° = \frac{\pi}{6}$$

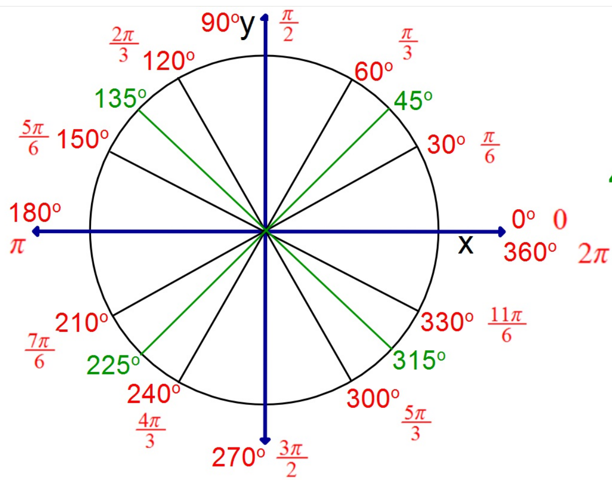
When you move from one angle to the next add another π/6 but reduce whenever possible.





Finish the degrees related to 45°-45°-90°





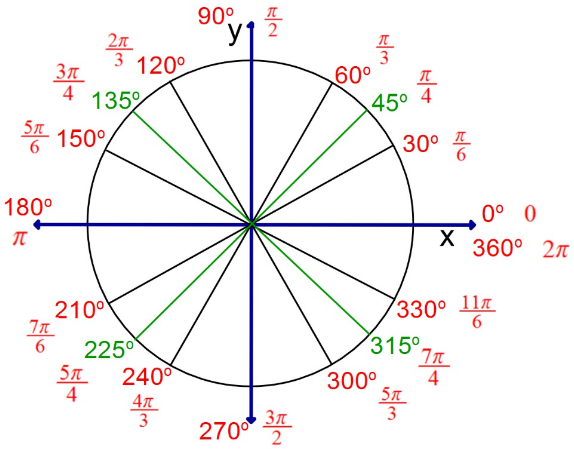
Finish filling in with Radians.

45°-45°-90°

$$45^\circ = 45^\circ \cdot \frac{\pi}{180^\circ}$$

$$45^\circ = \frac{\pi}{4}$$

Every time you move 45° you add another π/4 but reduce whenever possible.



What patterns do you see?