

Warm Up Review

Describe what it means for an angle to have the following measure in radians.

1)  $\frac{5\pi}{3}$

2)  $\frac{16\pi}{9}$

Convert each degree measure into radians and each radian measure into degrees.

3)  $-\frac{23\pi}{6} \cdot \frac{180}{\pi} = -690^\circ$

4)  $135^\circ \cdot \frac{\pi}{180} = \frac{3\pi}{4}$

Find the missing information, if  $r$  = radius,  $s$  = arc length and  $x$  = angle measure.

5)  $s = \frac{11\pi}{2}$  cm

$x = \frac{11\pi}{2} = \frac{\pi}{2} \cdot r \cdot 2$   
 $\frac{11\pi}{2} = \pi r$   
 $11 = r$  cm

6)  $s = \frac{32\pi}{3}$  ft

$\frac{32\pi}{3} = \theta \cdot 16 \cdot \frac{1}{16}$   
 $\frac{32\pi}{3} = \theta$

Find the missing information, if  $r$  = radius,  $A$  = area of sector and  $x$  = angle measure.

7)  $A = \frac{200\pi}{3}$  km<sup>2</sup>

$\frac{200\pi}{3} = \frac{1}{2} r^2 \left(\frac{4\pi}{3}\right)$   
 $\frac{200\pi}{3} = \frac{4\pi r^2}{6}$   
 $400\pi = 4\pi r^2$   $r^2 = 100$   
 $r = 10$  km

8)  $A = \frac{121\pi}{8}$  cm<sup>2</sup>

$\frac{121\pi}{8} = \frac{1}{2} (11)^2 \theta$   
 $2 \cdot \frac{\pi}{8} = \frac{\theta}{2} \cdot 2$   
 $\theta = \frac{\pi}{4}$

Draw an angle with the given measure in standard position. Label quadrantal angles!

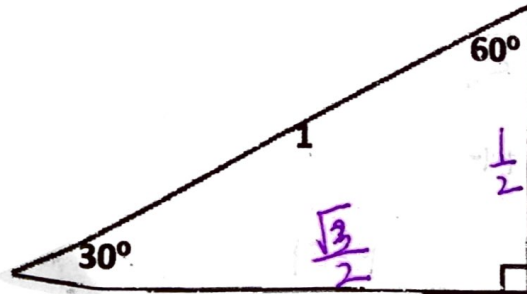
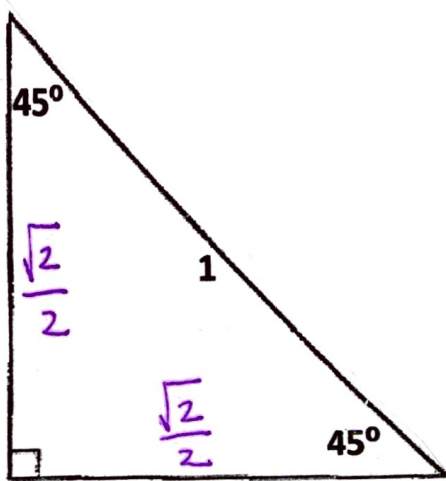
9)  $-190^\circ$

ref.  $\angle = 10^\circ$   
 cot  $\angle s = 170^\circ, -550^\circ$

10)  $\frac{15\pi}{4}$

ref.  $\angle = \frac{\pi}{4}$   
 cot.  $\angle s = \frac{7\pi}{4}, \frac{23\pi}{4}$   
 $-\frac{\pi}{4}$

Also review word prob.!



Honors Math III  
Right Triangle Trig Review

Using your 30-60-90 and 45-45-90 special right triangles. Find the following:

$\cos 30^\circ$ $\frac{\sqrt{3}}{2}$	$\sin 30^\circ$ $\frac{1}{2}$	$\tan 30^\circ$ $\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$	$\frac{\sin 30^\circ}{\cos 30^\circ}$ $\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{2}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$
$\cos 45^\circ$ $\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$	$\sin 45^\circ$ $\frac{\sqrt{2}}{2}$	$\tan 45^\circ$ 1	$\frac{\sin 45^\circ}{\cos 45^\circ}$ 1
$\cos 60^\circ$ $\frac{1}{2}$	$\sin 60^\circ$ $\frac{\sqrt{3}}{2}$	$\tan 60^\circ$ $\sqrt{3}$	$\frac{\sin 60^\circ}{\cos 60^\circ}$ $\frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

$$x = \cos \theta$$

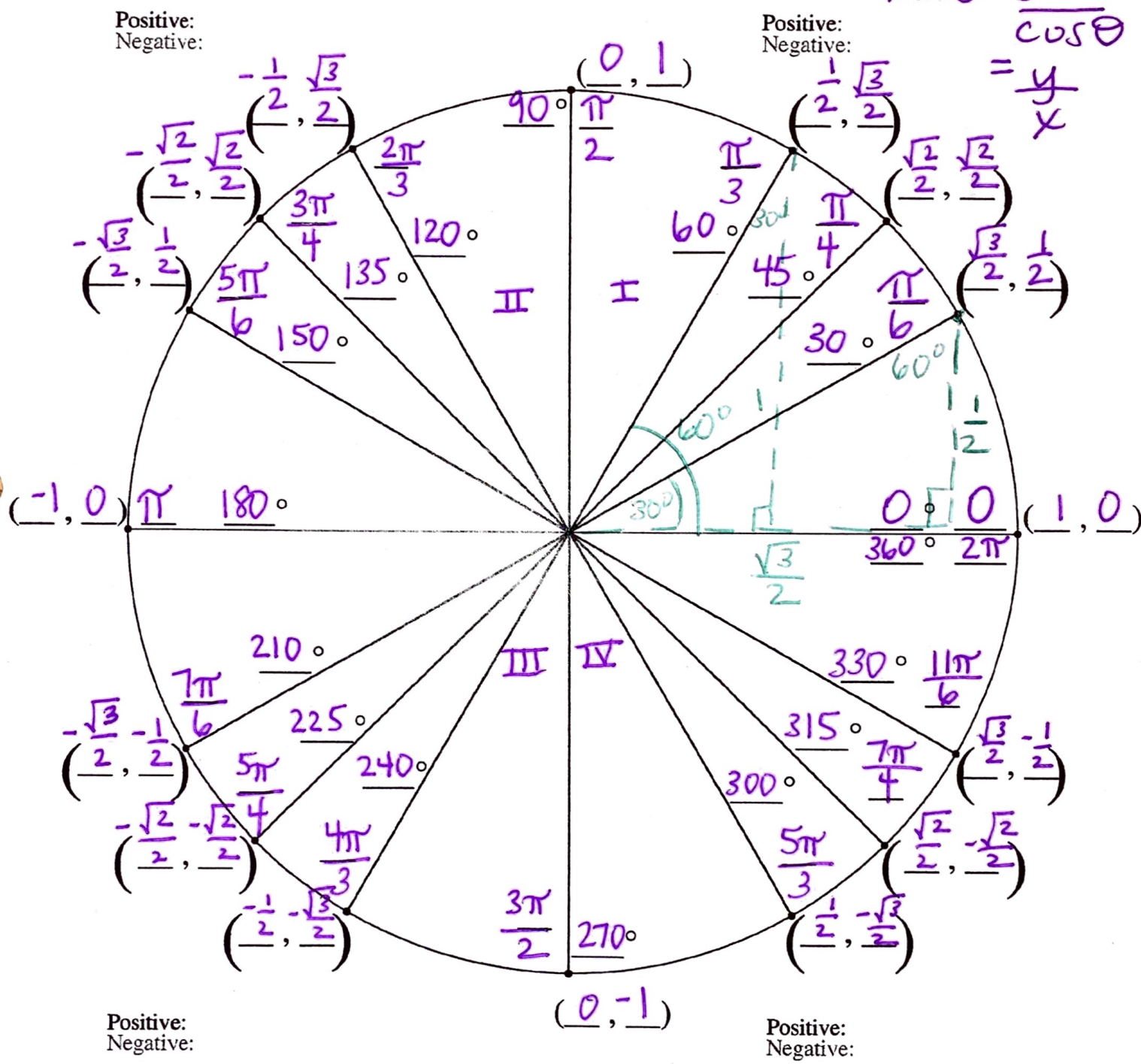
$$y = \sin \theta$$

(cos) (x, y)

# Fill in The Unit Circle

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$= \frac{y}{x}$$



UNIT CIRCLE

NO DECIMALS!

Using your unit circle, find the **exact value** of each trigonometric function.

1)  $\tan 315^\circ = \frac{\sin 315}{\cos 315} = \frac{-\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \boxed{-1}$       2)  $\sin \frac{11\pi}{6} = \boxed{-\frac{1}{2}}$

3)  $\cos 210^\circ = \boxed{-\frac{\sqrt{3}}{2}}$       4)  $\sin 180^\circ = \boxed{0}$

5)  $\cos \pi = \boxed{-1}$       6)  $\tan \frac{\pi}{2} = \frac{1}{0} = \underline{\text{undefined}}$

7)  $\tan \frac{3\pi}{4} = \frac{\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}} = \boxed{-1}$       8)  $\cos 150^\circ = \boxed{-\frac{\sqrt{3}}{2}}$

9)  $\sin 60^\circ = \boxed{\frac{\sqrt{3}}{2}}$       10)  $\cos \frac{7\pi}{6} = \boxed{-\frac{\sqrt{3}}{2}}$

11)  $\tan \frac{5\pi}{6} = \frac{\frac{1}{2}}{-\frac{\sqrt{3}}{2}} = \boxed{-\frac{\sqrt{3}}{3}}$

12)  $\tan \frac{4\pi}{3} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \boxed{-\sqrt{3}}$

$\frac{1}{2} \cdot \frac{-2}{\sqrt{3}} = \frac{-1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$

$\frac{-\sqrt{3}}{2} \cdot \frac{-2}{1} = \boxed{+\sqrt{3}}$

13)  $\tan \pi = \frac{0}{-1} = \boxed{0}$