Find both a positive and a negative coterminal angle for each. Give your answer in radians.

1. $\frac{29\pi}{9} \pm 2\pi$

$\frac{29\pi}{9} \pm \frac{18\pi}{9}$

Pos: $11\pi/9, 47\pi/9, \ldots$

Neg: $-7\pi/9, -25\pi/9 \ldots$

2. $-\frac{49\pi}{11} \pm \frac{22\pi}{11}$

Pos: $\frac{17\pi}{11}$

Neg: $-\frac{71\pi}{11}, -\frac{27\pi}{11}, -\frac{5\pi}{11}$

Find an angle between 0 and 2π that is coterminal with each given angle. Give your answer in radians.

1. $\frac{23\pi}{6} - \frac{12\pi}{6}$

$\frac{11\pi}{6}$

2. $-\frac{17\pi}{4} + \frac{8\pi}{4} = \frac{-9\pi}{4} + \frac{8\pi}{4}$

$= \frac{-\pi}{4} + \frac{8\pi}{4}$

$= \frac{7\pi}{4}$

Find the exact values of x and y in each triangle.

1. 20, 60°, x = 40, y = $20\sqrt{3}$

2. 12, 30°, x = $6\sqrt{3}$, y = 6

3. 7, x, 60°, $\frac{14\sqrt{3}}{3}$, y

$\frac{7}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{7\sqrt{3}}{3}$

Find the exact values of x and y in each triangle.

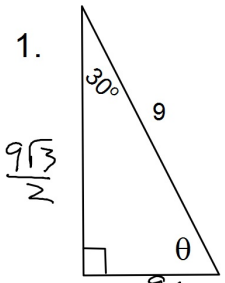
1. y = 10, x = $10\sqrt{2}$, 45°, 10

2. $\frac{3\sqrt{2}}{2}$, x, 45°, 3, y

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

Use the special right triangle relationships in each to find the Sinθ, Cosθ, and Tanθ

1.



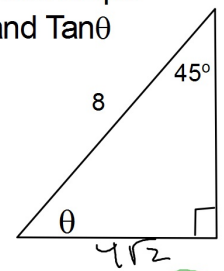
$\frac{9\sqrt{3}}{2}$

$\frac{9}{2}$

Sinθ= $\frac{9\sqrt{3}}{2} \div 9 = \frac{\sqrt{3}}{2}$ Cosθ= $\frac{\frac{9}{2}}{9} = \frac{1}{2}$ Tanθ= 1

Tanθ= $\frac{\frac{9\sqrt{3}}{2}}{\frac{9}{2}} = \frac{9\sqrt{3}}{2} \cdot \frac{2}{9} = \sqrt{3}$

2.



$4\sqrt{2}$

$\frac{8}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{8\sqrt{2}}{2} = 4\sqrt{2}$

Sinθ= $\frac{4\sqrt{2}}{8} = \frac{\sqrt{2}}{2}$ Cosθ= $\frac{\sqrt{2}}{2}$

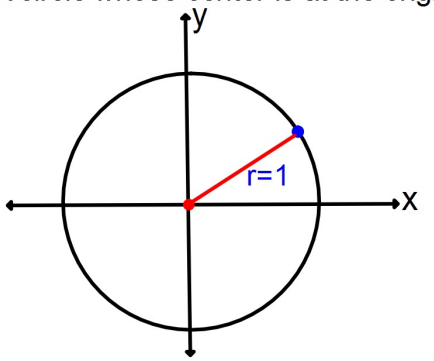
Right triangle trigonometry involves angles with the following measures:

$0° < \theta < 90°$

This means you were only able to find the Sin, Cos, and Tan of acute angles.

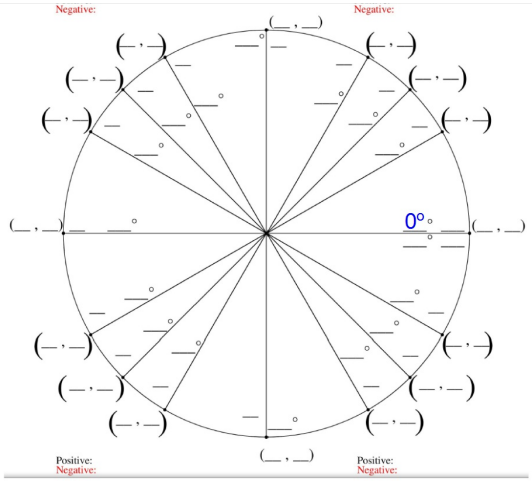
The Unit Circle:

A circle whose center is at the origin and its radius = 1.



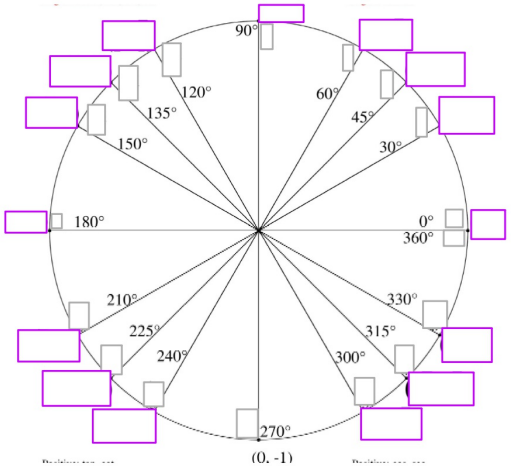
The unit circle is used to find the exact value for Sinθ, Cosθ, and Tanθ using the relationships in special right triangles.

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

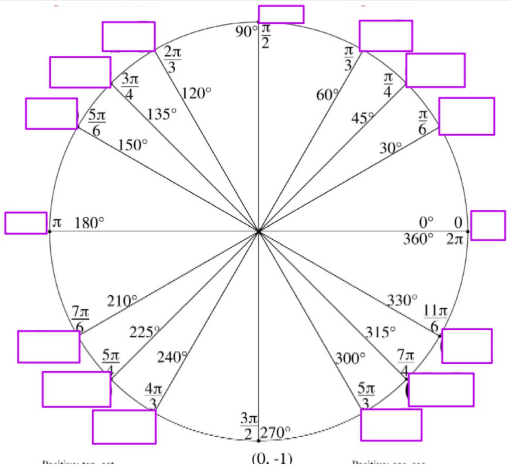


fill in all the angles in degrees

all the angles in the unit circle are related to 30, 45, and 60.



fill in all the angles in radians.



fill in all the angles in radians.