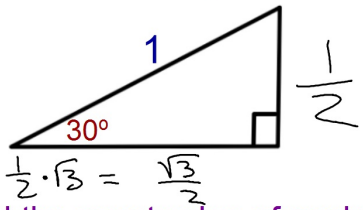
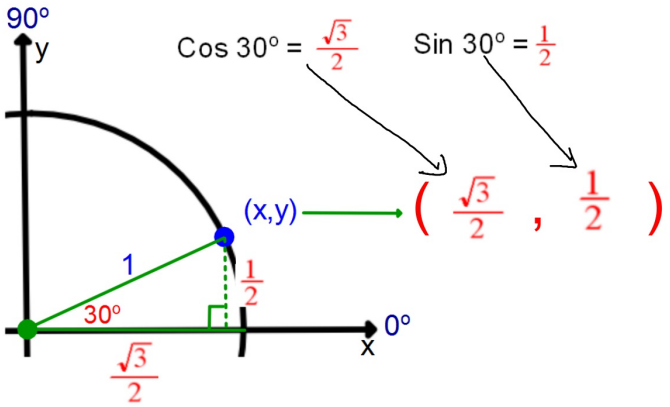
Find the exact length of each leg



Find the exact value of each:

cos30° = $\frac{\frac{\sqrt{3}}{2}}{1} = \frac{\sqrt{3}}{2}$ sin30° = $\frac{\frac{1}{2}}{1} = \frac{1}{2}$

What are the coordinates of the blue point?



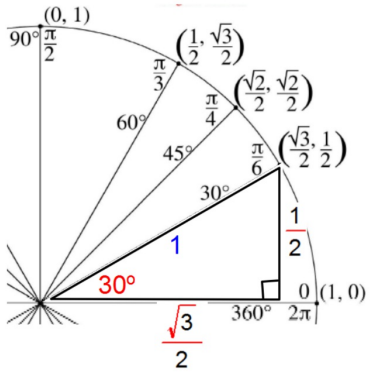
Coordinates on the Unit Circle:

(x , y) ⟶ (cosθ,sinθ)

Actually, Cosθ is defined as $\frac{x}{r}$

but since r=1: Cos$\theta = x$

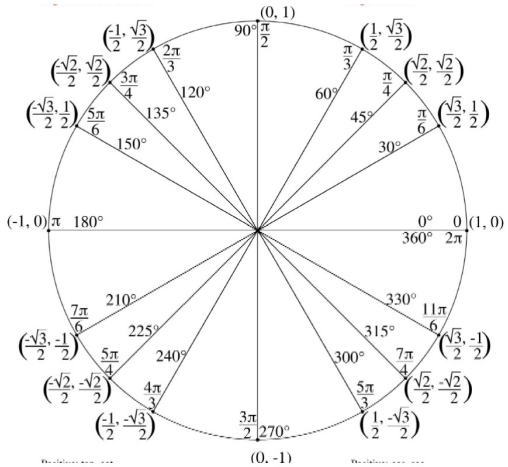
Finding Sinθ, Cosθ, and Tanθ using the Unit Circle



Cosθ = x (x-coordinate)

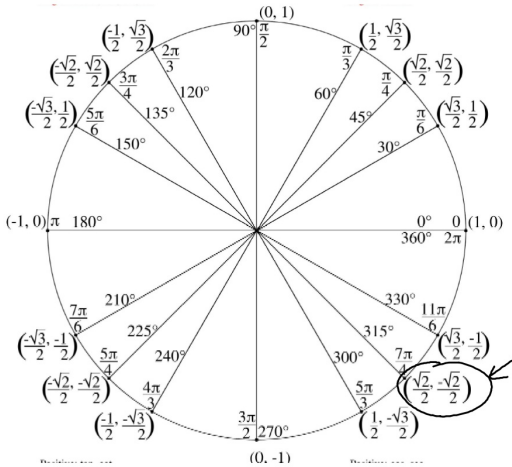
Sinθ = y (y-coordinate)

Tan$\theta = \frac{\text{Opp Leg}}{\text{Adj Leg}} = \frac{y}{x}$



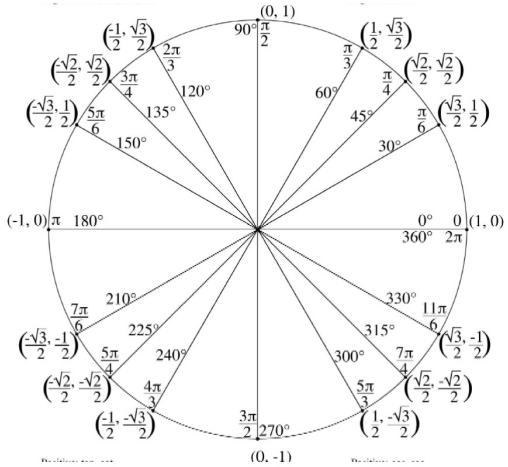
Use the Unit Circle to find the EXACT value of each.

1. $\cos\frac{2\pi}{3}$ = $-1/2$
2. $\sin\frac{7\pi}{6}$ = $-1/2$
3. $\sin(-135°)$ $+360$ $\sin(225)$ $= -\frac{\sqrt{2}}{2}$
4. $\cos 660°$ -360 $\cos 300° = \frac{1}{2}$



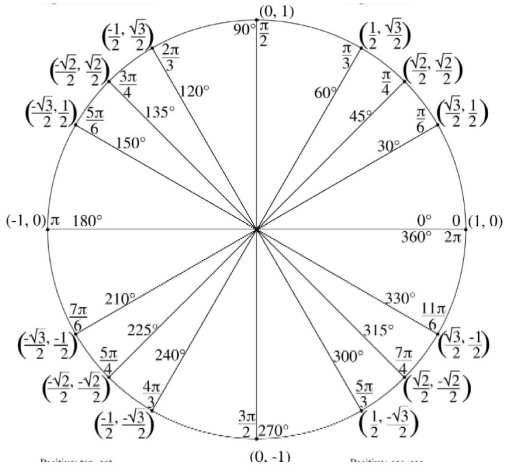
Use the Unit Circle to find the EXACT value of each.

1. $\cos\frac{11\pi}{6}$ $\frac{\sqrt{3}}{2}$
2. $\sin 225°$ $-\frac{\sqrt{2}}{2}$
3. $\tan(-\frac{\pi}{4}) = \tan\frac{7\pi}{4}$ $= \frac{-\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = -1$
4. $\cos(-480°)$ $+720$ $\cos 240° = -1/2$



Use the Unit Circle to find the EXACT value of each.

1. $\sin(-\frac{17\pi}{6})$ = $\sin\frac{7\pi}{6}$ $= -1/2$
2. $\tan 630°$ $= \tan 270° = \frac{-1}{0} =$ undefined
3. $\tan 840° = \tan 120°$ $= \frac{\sqrt{3}}{-1/2} = \frac{\sqrt{3}}{-1} = -\sqrt{3}$
4. $\cos(\frac{23\pi}{4})$ $= \cos\frac{7\pi}{4} = \frac{\sqrt{2}}{2}$



Use the Unit Circle to find the EXACT value of each.

1. $\tan(\frac{19\pi}{6}) \to \tan(\frac{7\pi}{6})$ $= \frac{-1/2}{-\sqrt{3}/2} = \frac{1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$ $= \sqrt{3}/3$
2. $\tan 44\pi \to \tan 2\pi$ $= \frac{0}{1} = 0$
3. $\sin 945°$ $= \sin 225° = -\frac{\sqrt{2}}{2}$
4. $\cos\frac{19\pi}{2}$ $= \cos 3\pi/2 = 0$

Use the given infomation to find the measure of all the anlges θ that meet each condition.

θ in degrees ($0° \le \theta \le 360°$)

1. $\cos\theta = -\frac{1}{2}$ 120, 240

2. $\sin\theta = \frac{\sqrt{2}}{2}$ 45°, 135°

3. $\cos\theta = 1$ 0°, 360°

4. $\sin\theta = -\frac{\sqrt{3}}{2}$ 240°, 300°

5. $\sin\theta = 0$ 0°, 180°, 360°

Use the given infomation to find the measure of all the anlges θ that meet each condition.

θ in degrees ($0° \le \theta \le 360°$)

6. $\tan\theta = -1$ $\frac{Y}{X}$ 135°, 315°

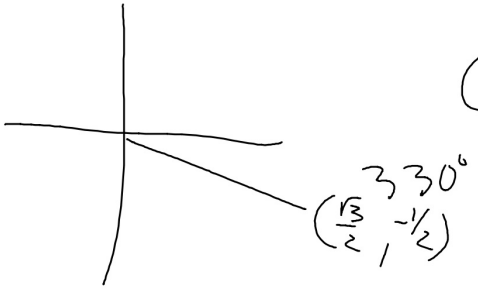
7. $\tan\theta = \sqrt{3} \Rightarrow$ 60°, 240°

$\frac{Y}{X}$ $\frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}}$ $\frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}$

8. $\tan\theta = -\frac{\sqrt{3}}{3}$ $\frac{Y}{X}$ $\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}}$ 150°, 330°

9. Given $Cos\theta > 0$ and $Sin\theta = -\frac{1}{2}$ find θ

X is pos y is neg ← IV quadrant



$\theta = 330°$