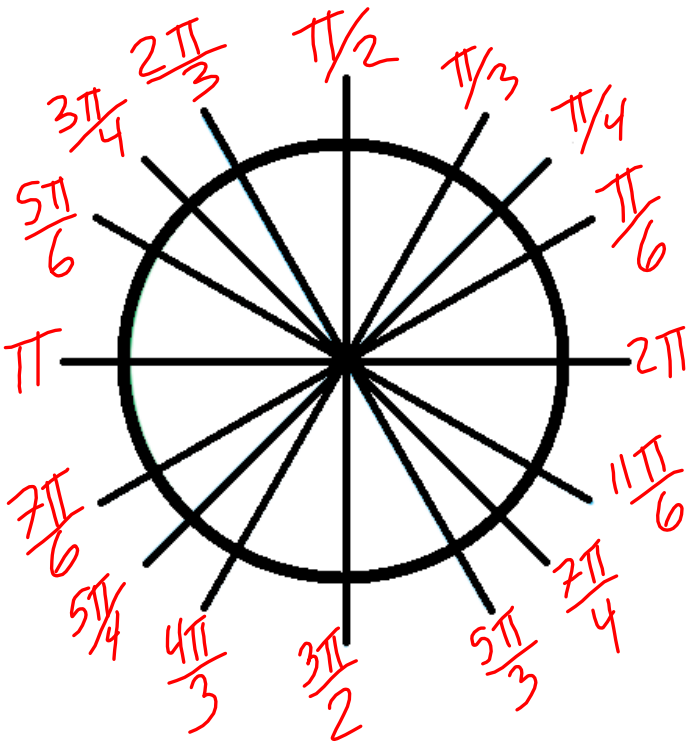
Minds On

Know Your Radians!



30°	45°	60°	90°
120°	135°	150°	180°
210°	225°	240°	270°
300°	315°	330°	360°

Minds On

Know Your Radians!

The keys to remember radians are remembering:

$\frac{\pi}{6}$ $\frac{\pi}{4}$ $\frac{\pi}{3}$ $\frac{\pi}{2}$

30° 45° 60° 90°

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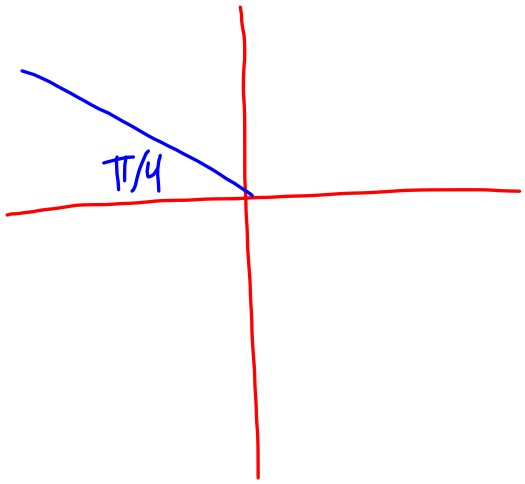
Know Your Radians!

Whiteboards

$$\frac{3\pi}{4}$$



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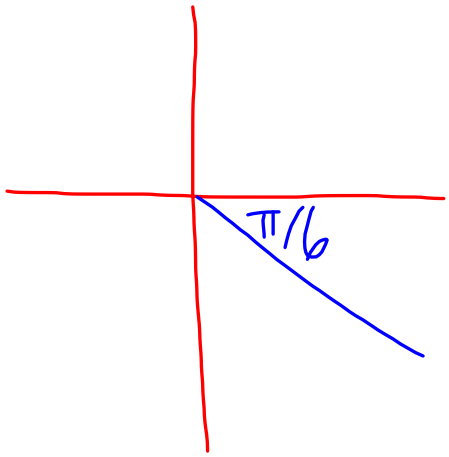
Whiteboards

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



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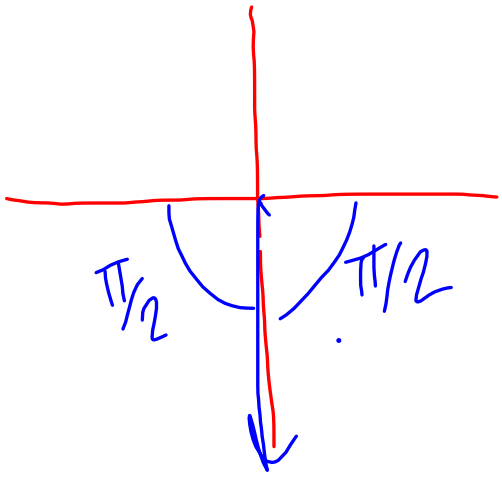
Whiteboards

$$\frac{3\pi}{2}$$



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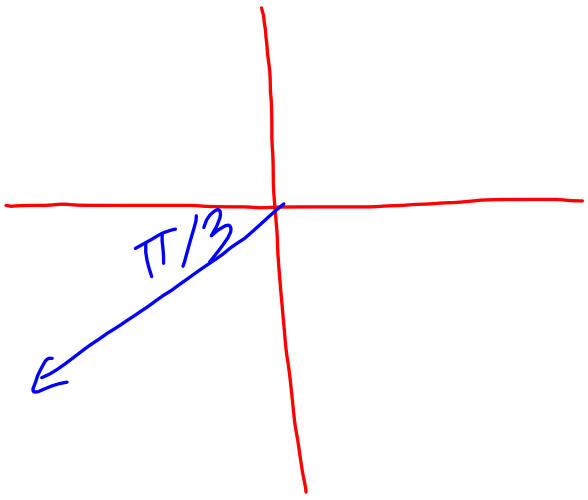
Whiteboards

$$\frac{4\pi}{3}$$



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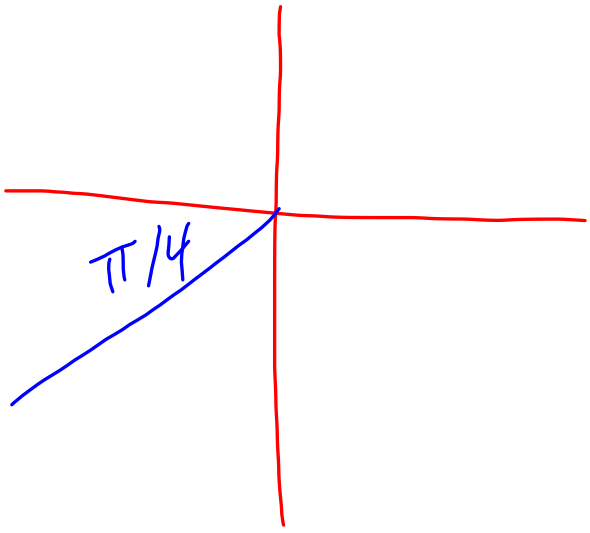
Whiteboards

$$\frac{5\pi}{4}$$



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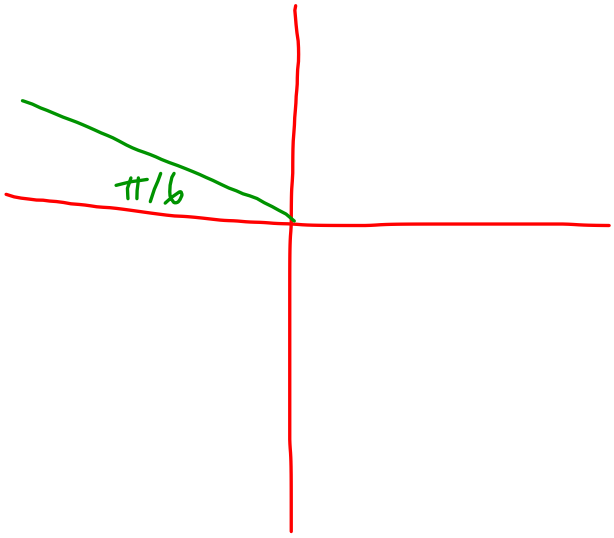
Whiteboards

$$\frac{5\pi}{6}$$



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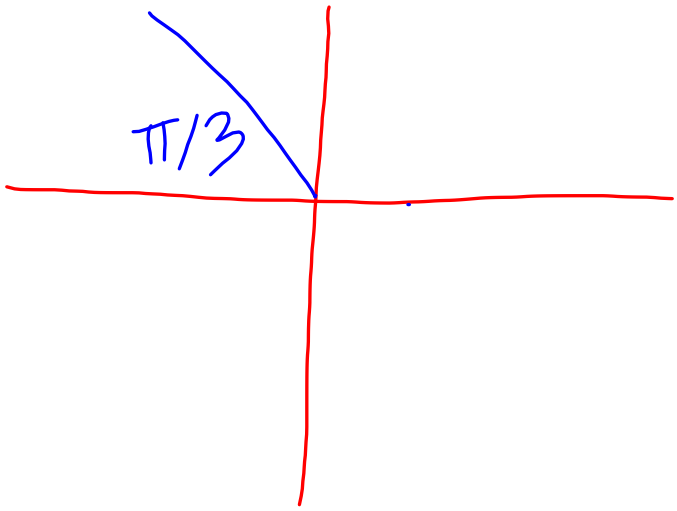
Whiteboards

$$\frac{2\pi}{3}$$



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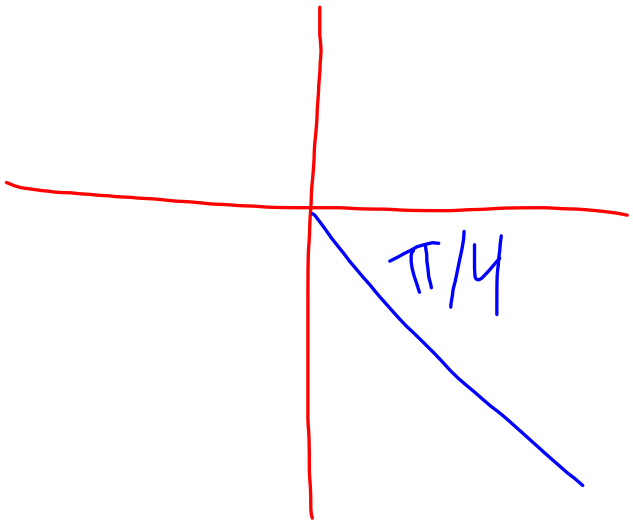
Whiteboards

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



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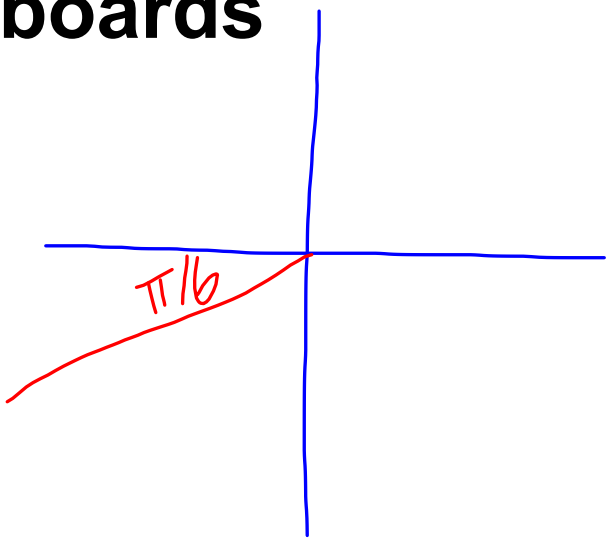
Know Your Radians!

Whiteboards

$$\frac{7\pi}{6}$$

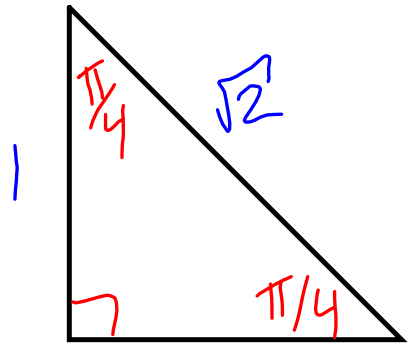


Action

6.2 Radian Measure and Angles on the Cartesian Plane

Example 1: Determine the radian measures of the angles in the special triangles, and calculate their primary trigonometric ratios.

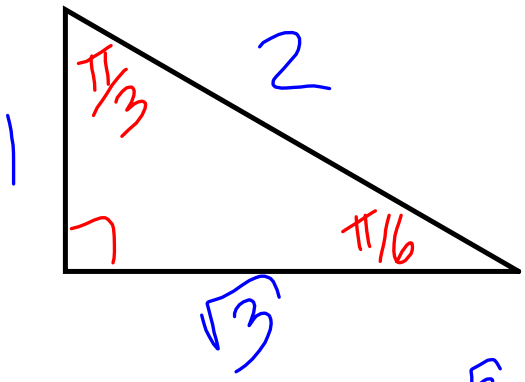
$\frac{\pi}{6}$ $\frac{\pi}{4}$ $\frac{\pi}{3}$ $\frac{\pi}{2}$



$\sin\frac{\pi}{4} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\cos\frac{\pi}{4} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\tan\frac{\pi}{4} = 1$



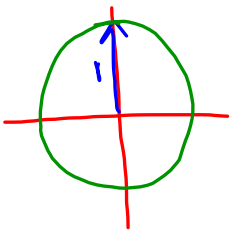
$\sin\frac{\pi}{6} = \frac{1}{2}$ $\sin\frac{\pi}{3} = \frac{\sqrt{3}}{2}$

$\cos\frac{\pi}{6} = \frac{\sqrt{3}}{2}$ $\cos\frac{\pi}{3} = \frac{1}{2}$

$\tan\frac{\pi}{6} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$ $\tan\frac{\pi}{3} = \sqrt{3}$

Example 2: Determine the exact value of each trigonometric ratio.

a) $\sin(\frac{\pi}{2})$

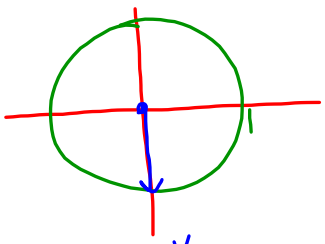


$\sin\theta = \frac{y}{r}$

$\sin\frac{\pi}{2} = \frac{1}{1}$

$\sin\pi/2 = 1$

b) $\cot(\frac{3\pi}{2})$



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

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

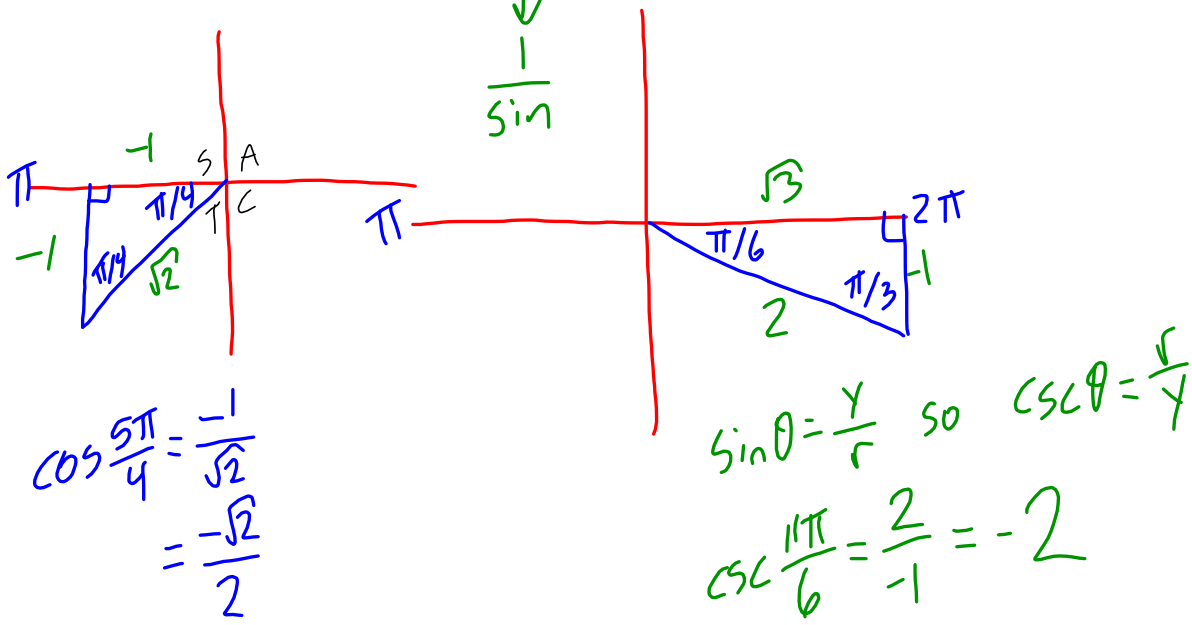
$\cot\frac{3\pi}{2} = \frac{0}{-1}$

$\cot\frac{3\pi}{2} = 0$

$\frac{1}{\tan\frac{3\pi}{2}}$

Example 3: Determine the exact value of each trigonometric ratio.

a) $\cos(\frac{5\pi}{4})$ b) $\csc(\frac{11\pi}{6})$



$\csc\theta = \frac{1}{\sin}$

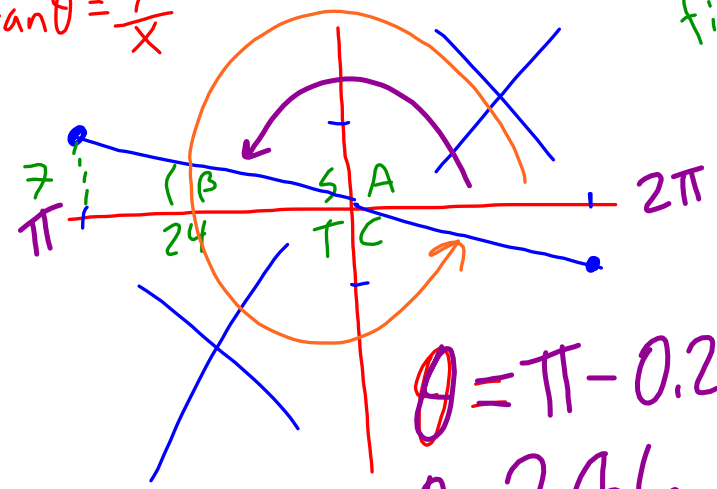
$\cos\frac{5\pi}{4} = \frac{-1}{\sqrt{2}} = \frac{-\sqrt{2}}{2}$

$\sin\theta = \frac{y}{r}$ so $\csc\theta = \frac{r}{y}$

$\csc\frac{11\pi}{6} = \frac{2}{-1} = -2$

Example 4: If $tan\theta = (-\frac{7}{24})$, where $0 \le \theta \le 2\pi$, evaluate θ to the nearest hundredth.

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



find β when $\tan\beta = \frac{7}{24}$

$\beta = 0.28$

$\theta = \pi - 0.28$

$\theta = 2.86$

and

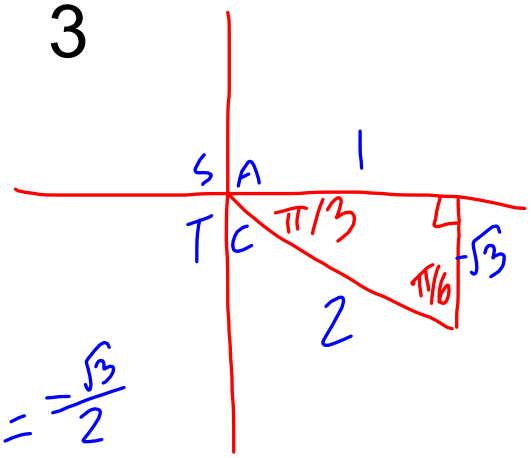
$\theta = 2\pi - 0.28$

$\theta = 6.00$

Consolidation

Determine the exact values of the primary trig ratios when

$$\theta = \frac{5\pi}{3}$$



$\sin\theta = -\frac{\sqrt{3}}{2}$

$\cos\theta = \frac{1}{2}$ $\tan\theta = -\sqrt{3}$

Pg. 330

2, 5, 7, 8, 9, 11

*Switch your calculator to radians!

Pg. 330

2, 5, 7, 8, 9, 11

*Switch your calculator to radians!