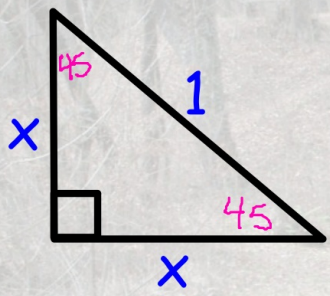
Wednesday, September 11

Find the missing sides of each triangle. (without a calculator)



$x^2+x^2=1^2$

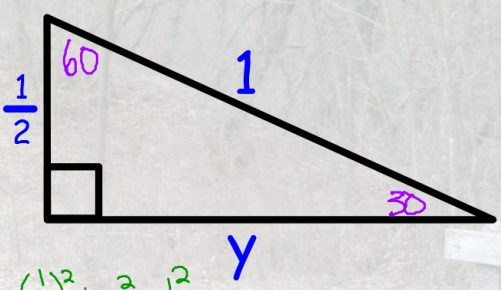
$\frac{2x^2}{2}=\frac{1}{2}$

$\sqrt{x^2}=\sqrt{\frac{1}{2}}$

$x=\sqrt{\frac{1}{2}}$

$x=\frac{\sqrt{1}}{\sqrt{2}}=\frac{1}{\sqrt{2}}$

$x=\frac{1}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{\sqrt{2}}{2}$



$(\frac{1}{2})^2+y^2=1^2$

$\frac{1}{4}+y^2=1$

$-\frac{1}{4}\quad -\frac{1}{4}$

$\sqrt{y^2}=\sqrt{\frac{3}{4}}$

$y=\sqrt{\frac{3}{4}}=\frac{\sqrt{3}}{\sqrt{4}}$

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

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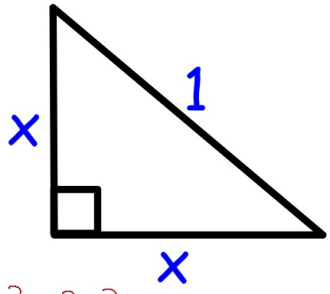


$x^2+x^2=1^2$

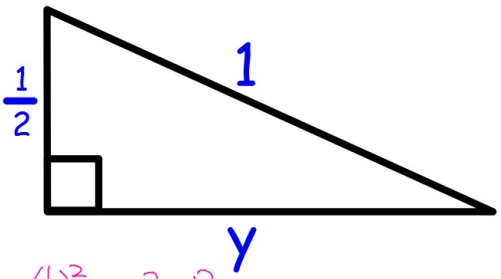
$\frac{2x^2}{2}=\frac{1}{2}$

$\sqrt{x^2}=\sqrt{\frac{1}{2}}$

$x=\sqrt{\frac{1}{2}}$

$x=\frac{\sqrt{1}}{\sqrt{2}}=\frac{1}{\sqrt{2}}$

$\frac{1}{\sqrt{2}}\cdot\frac{\sqrt{2}}{\sqrt{2}}=\frac{\sqrt{2}}{2}=x$



$(\frac{1}{2})^2+y^2=1^2$

$4\cdot\frac{1}{4}+4y^2=1\cdot4$

$1+4y^2=4$

$-1\quad -1$

$4y^2=3$

$\frac{4y^2}{4}=\frac{3}{4}$

$\sqrt{y^2}=\sqrt{\frac{3}{4}}$

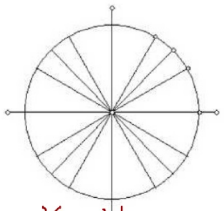
$y=\sqrt{\frac{3}{4}}=\frac{\sqrt{3}}{\sqrt{4}}$

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

September 11

Students will verbally explain how to find the coordinates of specific points around the unit circle

(using the words:
angle, radius, trig functions…)



	m°	m^R	$\cos(\theta)$	$\sin(\theta)$	$\tan(\theta)$	$\sec(\theta)$	$\csc(\theta)$	$\cot(\theta)$
	0		1	0				
	$\frac{\pi}{6}$		$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$				
	$\frac{\pi}{4}$		$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$				
	$\frac{\pi}{3}$		$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$				
	$\frac{\pi}{2}$		0	1				
	$\frac{2\pi}{3}$		$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$				
	$\frac{3\pi}{4}$		$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$				
	$\frac{5\pi}{6}$		$-\frac{\sqrt{3}}{2}$	$\frac{1}{2}$				
	π		−1	0				
	$\frac{7\pi}{6}$		$-\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$				
	$\frac{5\pi}{4}$		$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$				
	$\frac{4\pi}{3}$		$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$				
	$\frac{3\pi}{2}$		0	−1				
	$\frac{5\pi}{3}$		$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$				
	$\frac{7\pi}{4}$		$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$				
	$\frac{11\pi}{6}$		$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$				
	2π		−1	0				

$\sin(\theta) = \frac{\text{opposite}}{\text{hypotenuse}}$

$\csc(\theta) = \frac{\text{hypotenuse}}{\text{opposite}}$

$\tan(\theta) = \frac{\text{opposite}}{\text{adjacent}}$

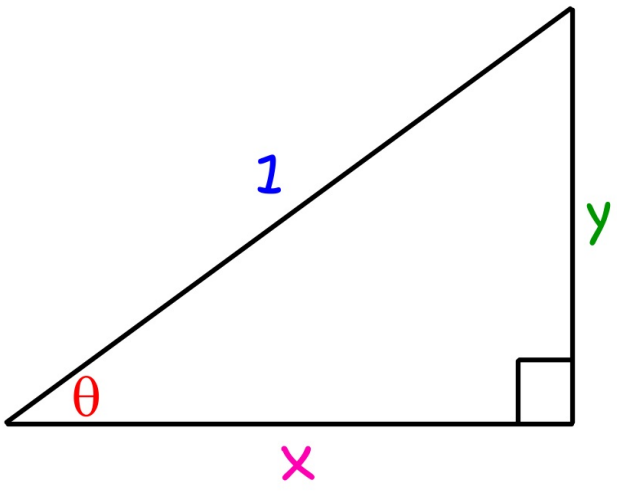
$\cot(\theta) = \frac{\text{adjacent}}{\text{opposite}}$

$\sec(\theta) = \frac{\text{hypotenuse}}{\text{adjacent}}$

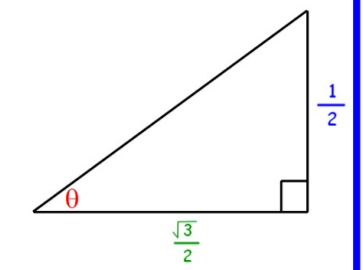
$\cos(\theta) = \frac{\text{adjacent}}{\text{hypotenuse}}$

hypotenuse adjacent opposite

hypotenuse adjacent

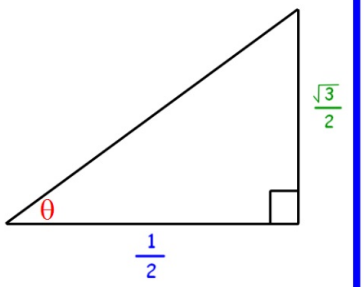


$$\tan\theta = \frac{Y}{X} = \frac{\sin\theta}{\cos\theta}$$



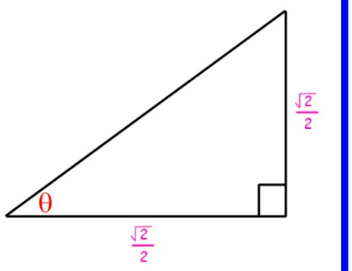
$$\tan\theta = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}}$$

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



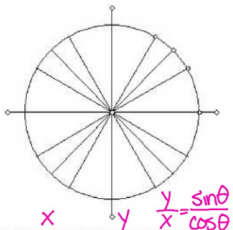
$$\tan\theta = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}}$$

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



$$\tan\theta = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = \boxed{1}$$

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



x y $\frac{y}{x} = \frac{\sin\theta}{\cos\theta}$ $\frac{1}{x} = \frac{1}{\cos\theta}$

	m^R	m°	$\cos(\theta)$	$\sin(\theta)$	$\tan(\theta)$	$\sec(\theta)$	$\csc(\theta)$	$\cot(\theta)$
	0		1	0	0	1		
	$\frac{\pi}{6}$		$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$1/\sqrt{3}$	$2/\sqrt{3}$		
	$\frac{\pi}{4}$		$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	$2/\sqrt{2}$		
	$\frac{\pi}{3}$		$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\sqrt{3}$	$\frac{2}{1}=2$		
	$\frac{\pi}{2}$		0	1	undefined	undef		
	$\frac{2\pi}{3}$		$-\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$-\sqrt{3}$	-2		
	$\frac{3\pi}{4}$		$-\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	-1	$-2/\sqrt{2}$		
	$\frac{5\pi}{6}$		$-\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$-1/\sqrt{3}$	$-2/\sqrt{3}$		
	π		-1	0	0	-1		
	$\frac{7\pi}{6}$		$-\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$1/\sqrt{3}$	$-2/\sqrt{3}$		
	$\frac{5\pi}{4}$		$-\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	1	$-2/\sqrt{2}$		
	$\frac{4\pi}{3}$		$-\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$\sqrt{3}$	-2		
	$\frac{3\pi}{2}$		0	-1	undef	undef		
	$\frac{5\pi}{3}$		$\frac{1}{2}$	$-\frac{\sqrt{3}}{2}$	$-\sqrt{3}$	2		
	$\frac{7\pi}{4}$		$\frac{\sqrt{2}}{2}$	$-\frac{\sqrt{2}}{2}$	-1	$2/\sqrt{2}$		
	$\frac{11\pi}{6}$		$\frac{\sqrt{3}}{2}$	$-\frac{1}{2}$	$-1/\sqrt{3}$	$2/\sqrt{3}$		
	2π		-1	0	0	-1		