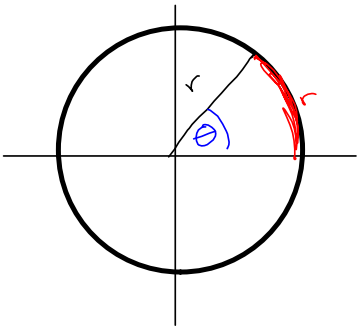


θ = 1 radian

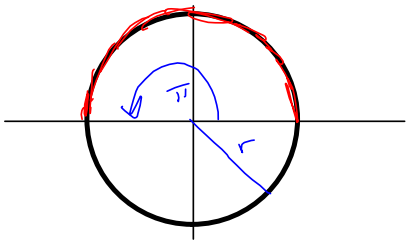
$2\pi r$ = circumference

$r \cdot 2\pi$

radius, angle

$\frac{1}{2}$ - circle's arc length:

$r \cdot \pi$



Area of circle of radius r is

$A = \pi r^2 = r^2 \cdot \pi$

Angle is 2π

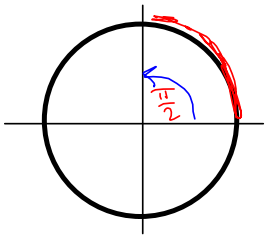
$\frac{1}{2} \cdot 2 = 1$

$r^2 \cdot \pi = \frac{1}{2} r^2 \cdot 2\pi$

Area of quarter circle:

$\frac{1}{4} A = \frac{1}{4} \left(\frac{1}{2} r^2 \right) 2\pi$

$= \frac{1}{2} r^2 \left(\frac{1}{4} \cdot 2\pi \right) = \frac{1}{2} r^2 \cdot \frac{\pi}{2}$



In general $\theta = \frac{\pi}{2}$!

Area of a sector swept by an angle θ

is $A = \frac{1}{2} r^2 \theta$

$S = r\theta$, $A = \frac{1}{2}r^2\theta$ } From $C = 2\pi r$

From $A = \pi r^2$ $\left(= \frac{1}{2}r^2 \cdot 2\pi\right)$

Both correspond to $\theta = 2\pi$

Complimentary – a nice thing you said when you were sucking up

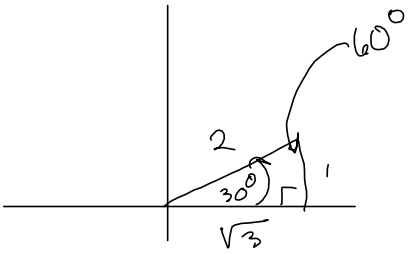
Complementary – Means what isn't.

$\theta + \phi = \frac{\pi}{2} = 90^\circ$

θ, ϕ positive.

Supplementary: $\theta + \phi = \pi = 180^\circ$

S'l.l questions?



Kinda dipping into S'1.3.

30-60 right triangle

1-2-√3

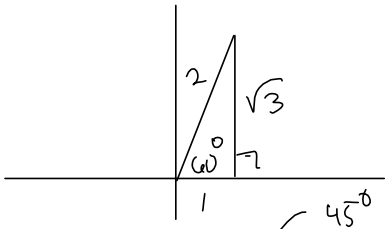
$\sin 30^\circ = \sin\frac{\pi}{6} = \frac{1}{2}$

$\cos 30^\circ = \cos\frac{\pi}{6} = \frac{\sqrt{3}}{2}$

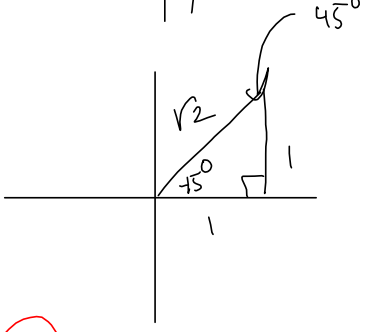
$\tan 30^\circ = \frac{1}{\sqrt{3}}$

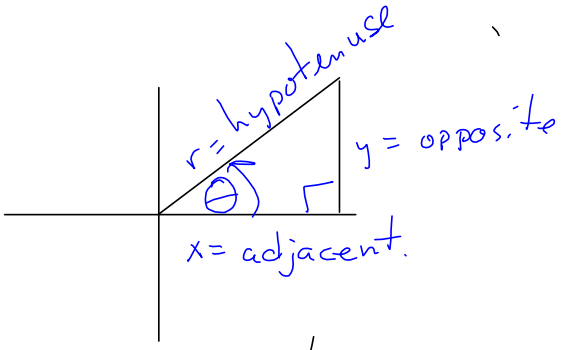
$= \tan\frac{\pi}{6}$

sohcahtoa



Also 1-2-√3, but 30° & 60° swapped places.





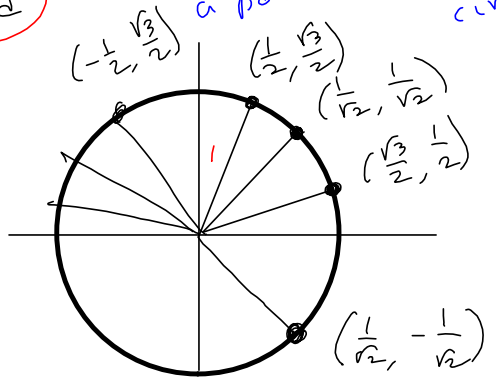
Sohcahtoa !

$\frac{o}{h} = \frac{opp}{hyp} = \sin\theta = \frac{y}{r}$ regardless of r. $\sin\theta$ is a fixed value for fixed θ.

$\cos\theta = \frac{x}{r} = \frac{adj}{hyp} = \frac{a}{h}$

$\tan\theta = \frac{y}{x} = \text{slope}! = \frac{o}{a}$

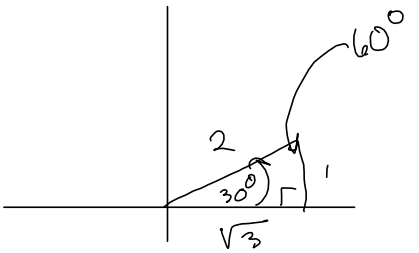
$(\cos\theta, \sin\theta)$ is a point on the unit circle

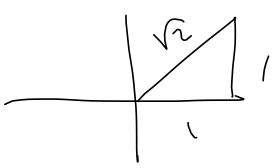


sohcahtoa

$\sin 30^\circ = \sin\frac{\pi}{6} = \frac{1}{2}$

$\cos 30^\circ = \cos\frac{\pi}{6} = \frac{\sqrt{3}}{2}$

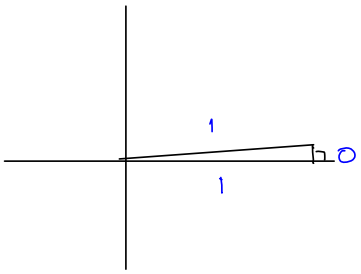




Quadrantal Angles.

0°

Degenerate Triangle

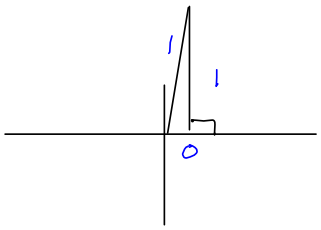


$\sin 0^\circ = \frac{0}{1} = 0$

$\cos 0^\circ = \frac{1}{1} = 1$

$\tan 0^\circ = \frac{0}{1} = 0$

$90^\circ = \frac{\pi}{2}$



$\sin 90^\circ = \frac{1}{1} = 1$

$\cos 90^\circ = \frac{0}{1} = 0$

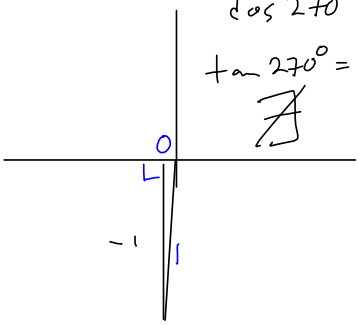
$\tan 90^\circ = \frac{1}{0}$?! ∴ ∄

$\sin 270^\circ = \sin \frac{3\pi}{2} = -1$

$\cos 270^\circ = 0$

$\tan 270^\circ = \frac{-1}{0}$ ∄

$270^\circ \cdot \frac{\pi}{180^\circ} = \frac{3}{2}\pi$



"∃" means there is or there exists.

2.1 radians ?!

$(2.1)\left(\frac{180^\circ}{\pi}\right) \approx 120.3^\circ$

Oh.


```
10/3*π
      10.47197551
2.1*180/π
      120.321137
```

S 1.1 #66

$s = r\theta$

$\frac{65 \text{ mi}}{\text{hr}} = \frac{1 \cdot \theta}{\text{hr}}$

$\frac{\theta}{\text{hr}} = \left(\frac{65 \text{ rad}}{\text{hr}}\right)\left(\frac{1 \text{ rev}}{2\pi \text{ rad}}\right) = \frac{65}{2\pi} \frac{\text{rev}}{\text{hr}}$