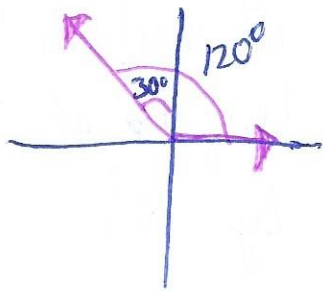


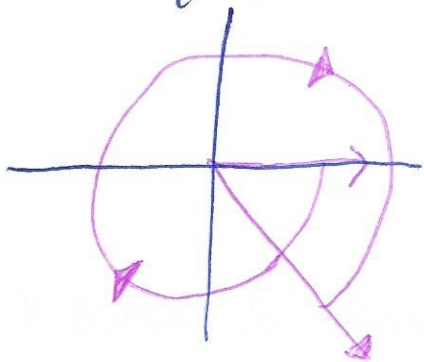
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○ Ex: Convert 120° to radians



$$120^\circ \left(\frac{\pi}{180^\circ} \right) = \frac{120\pi}{180} = \frac{2\pi}{3}$$

Ex: What quadrant is -420° in?



$$\frac{-\pi}{3} - 2\pi = \frac{-\pi - 6\pi}{3} = \frac{-7\pi}{3}$$

○ Ex: Convert the following:

1) 180°

2) 145°

3) $\pi/4$

4) $-7\pi/6$

Answers

1) π

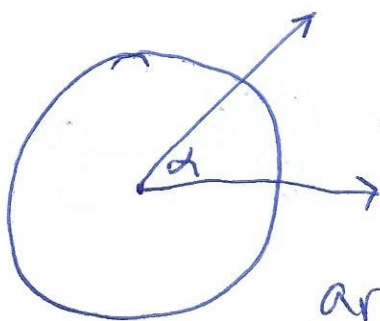
2) $\frac{29\pi}{36}$

3) 45°

4) -210°

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Ex:



If α is a central angle
in a circle of radius r ,
what is the length of the
arc intercepted by α ?

$$\text{If } \alpha = 2\pi, S = 2\pi r$$

$$\alpha = \pi, S = \pi r$$

$$\alpha = \theta, S = \theta r$$

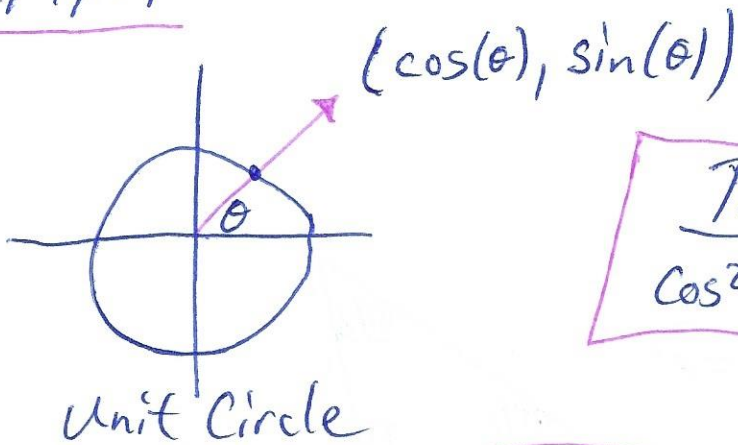
$S =$ arc length

If a point is in motion on a circle of radius r
through an angle of α (in radians) in time t ,
then its linear velocity is $v = \frac{S}{t} = \frac{\alpha r}{t}$.

And, its angular velocity is $\omega = \frac{\alpha}{t}$

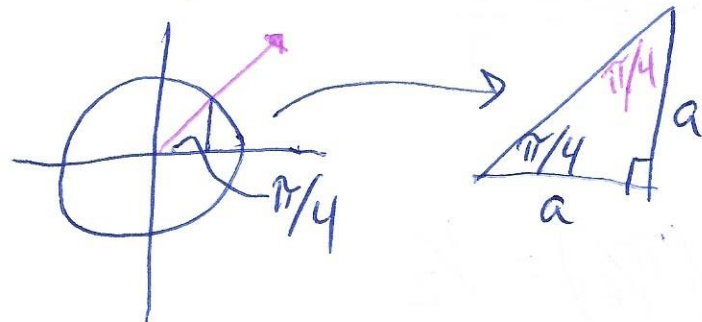
Notice: $\omega r = v$, i.e. $\omega = \frac{v}{r}$, $\omega =$ "omega"

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Theorem
 $\cos^2\theta + \sin^2\theta = 1$

Ex: $\sin(\pi/4) = \sqrt{\frac{1}{2}} = \frac{\sqrt{2}}{2}$



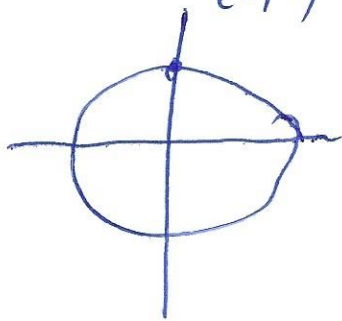
The whole triangle has π radians.

~~$a^2 + a^2 = 1$~~
 $a^2 + a^2 = 1$
 $\Rightarrow 2a^2 = 1$
 $\Rightarrow a^2 = \frac{1}{2}$

$\Rightarrow a = \pm\sqrt{\frac{1}{2}} = \sqrt{\frac{1}{2}}$, discarde $-\sqrt{\frac{1}{2}}$

Ex: $\sin(\pi/2) = 1$
 $(0, 1)$

Also, $\cos(\pi/2) = 0$



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Ex: $\sin(\pi/6)$

