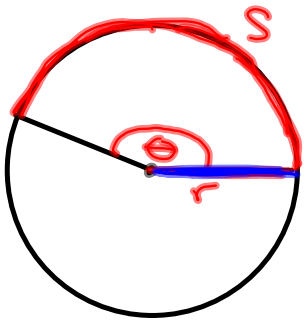
§1.1 #s 1-6, 7-57 odds, 60, 63, 69.

All write out questions

Due ~~Monday~~ Wednesday

Recall

$\theta = \frac{s}{r}$ in radians



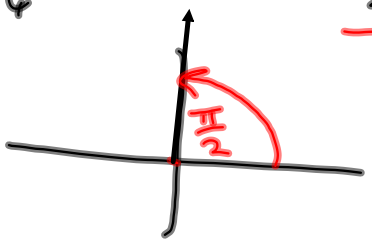
Radians relate angles to corresponding arc length, via the radius.

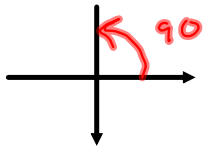
radian measure = ratio, $\frac{\text{arc length}}{\text{radius}}$

2π radians all the way 'round the circle:

$\frac{2\pi r}{r} = 2\pi$ radians. See?

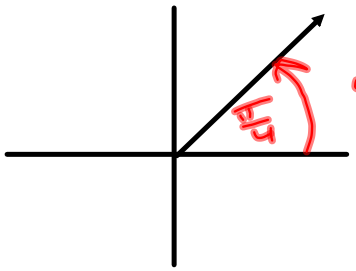
$\frac{2\pi}{4} = \frac{1}{4}$ around $= \frac{\pi}{2} = 90^\circ$





Common (over-used) 1st quadrant angles.

$\frac{2\pi}{8} = \frac{1}{8}$ around $= \frac{\pi}{4}$ radians $= 45^\circ$



$\frac{2\pi}{6} = \frac{1}{6}$ around $= \frac{\pi}{3} = 60^\circ$

$\frac{2\pi}{12} = \frac{1}{12}$ around $= \frac{\pi}{6} = 30^\circ$

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

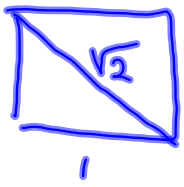
$\frac{\pi}{6} = \frac{\frac{\pi}{2}}{3} = 30^\circ$

$\frac{\pi}{3} = 2 \cdot \frac{\pi}{6} = 60^\circ$

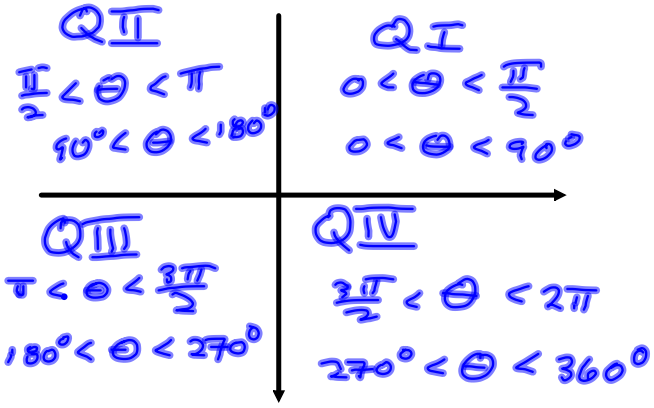
2π radians $\approx 2 \cdot 3.14 = 6.28$ radians to go around the circle.

A little more than 6 radians to go full circle.

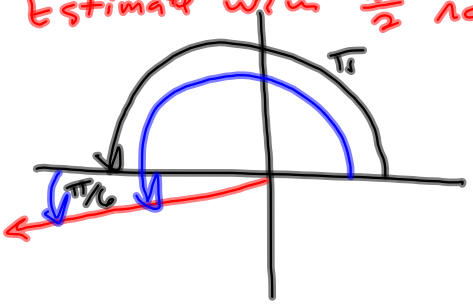
1 radian $\approx 57.2957795^\circ$



$180 + 90 = 270$

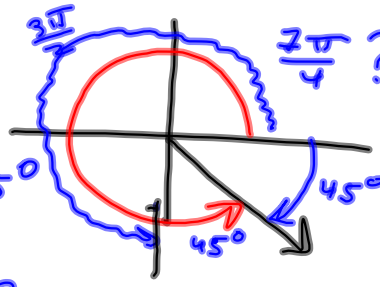


Estimate w/in $\frac{\pi}{2}$ radians



use one of $\frac{\pi}{6}, \frac{\pi}{3}, \frac{\pi}{4}, \frac{\pi}{2}$ as your touchstones.

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



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

$360^\circ - 45^\circ = 315^\circ$

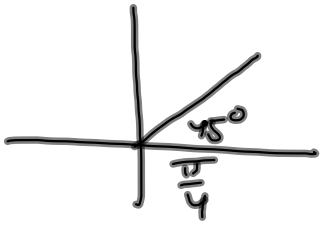
$2\pi - \frac{\pi}{4} =$

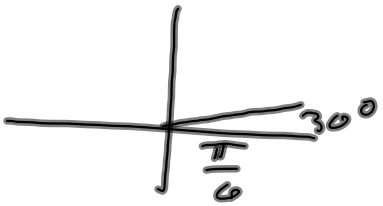
$\frac{8\pi}{4} - \frac{\pi}{4} = \frac{7\pi}{4}$

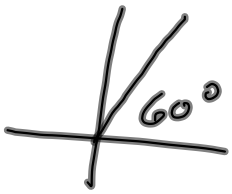
$45^\circ = \frac{\pi}{4}$ = Reference Angle

$\frac{3\pi}{2} + \frac{\pi}{4} = \frac{7\pi}{4}$

$270^\circ + 45^\circ = 315^\circ$

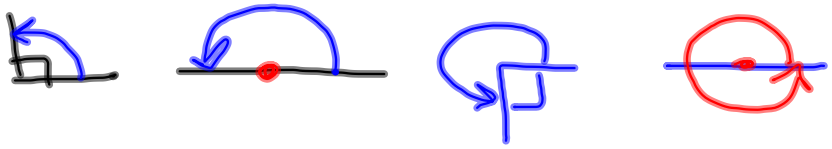




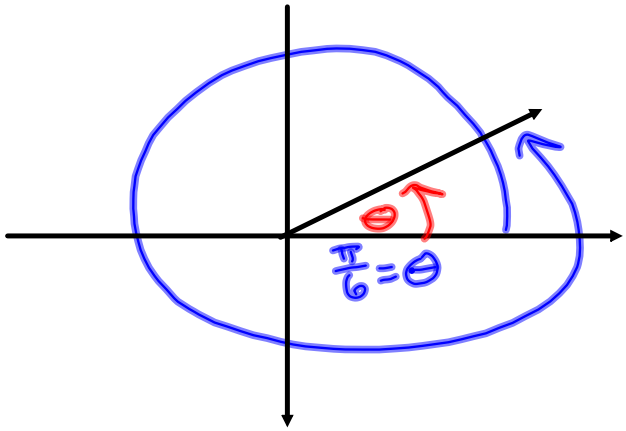


Special: Quadrantal Angles:

Degrees	90°	180°	270°	360°
Radians	$\frac{\pi}{2}$	π	$\frac{3\pi}{2}$	2π



Coterminal Angles. "Representation is not unique."



Same picture for an ∞ number of angles

$\theta + 2\pi$ is coterminal with θ.

$\frac{\pi}{6} + 2\pi = \frac{\pi}{6} + \frac{12\pi}{6} = \frac{13\pi}{6}$ are also coterminal.

$\frac{\pi}{6} - 2\pi = -\frac{11\pi}{6}$ is also coterminal with $\frac{\pi}{6}$.

See #s 29, 30

$\frac{\pi}{6} + 17 \cdot 2\pi = \frac{\pi}{6} + 34\pi = \frac{204\pi}{6} + \frac{\pi}{6} = \frac{205\pi}{6}$ is ALSO coterminal.

$\theta + 2n\pi$ is coterminal with θ, for any integer n.