

The Trigonometric Functions

18.4 – Reference & Special Angles

Name _____

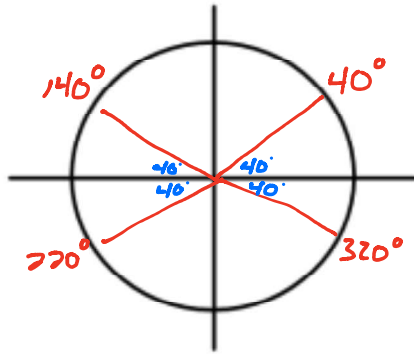
Reference Angle – An acute angle formed by the x-axis and the terminal side of an angle in standard position.

$\sin 40^\circ$

$\sin 140^\circ$

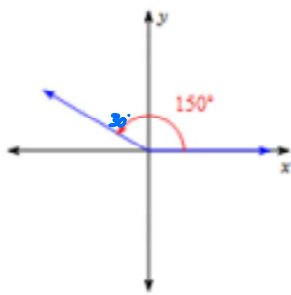
$\sin 220^\circ$

$\sin 320^\circ$

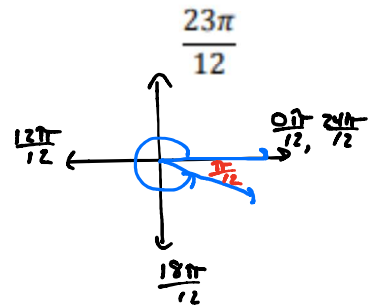
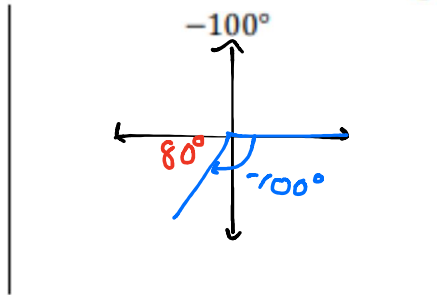


CALC:
 $\sin 40^\circ = .643$
 $\sin 140^\circ = .643$
 $\sin 220^\circ = -.643$
 $\sin 320^\circ = -.643$

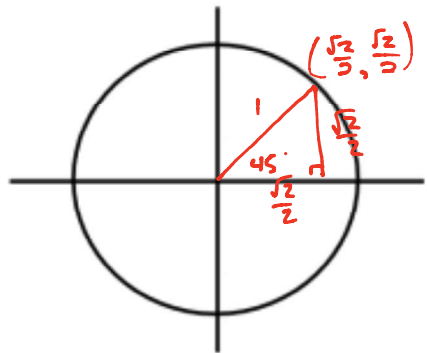
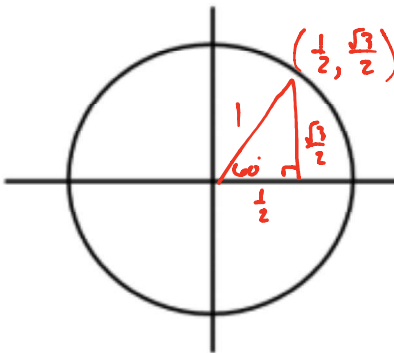
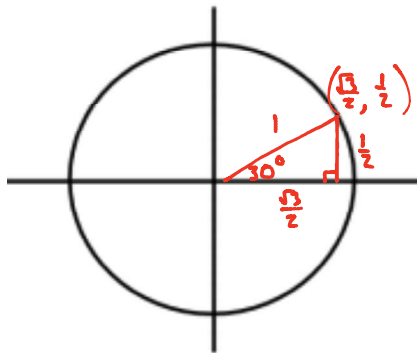
Find the Reference Angle



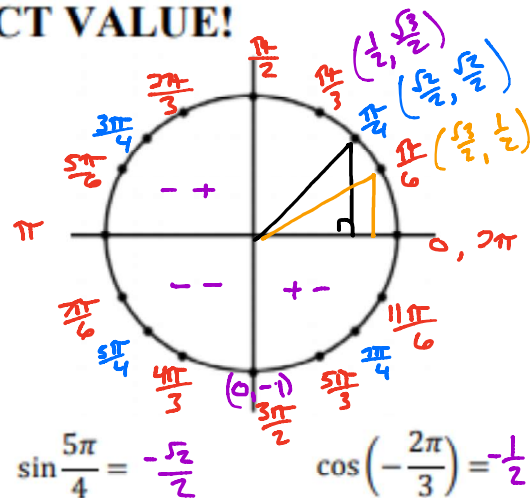
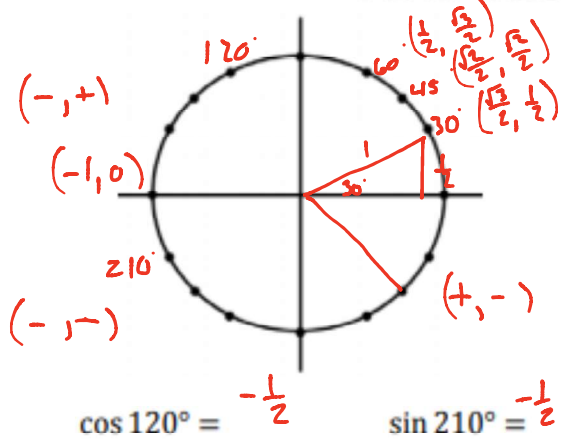
$(\cos \theta, \sin \theta)$



SPECIAL ANGLES



FIND THE EXACT VALUE!

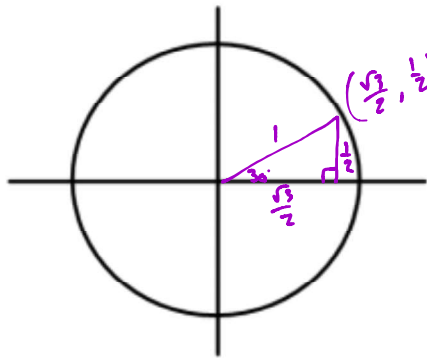


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$$30^\circ \cdot \frac{1}{\frac{1}{\sqrt{3}}} = \frac{1}{\sqrt{3}}$$



$$\tan 30^\circ = \frac{1/2}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$$

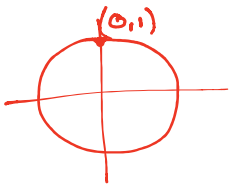
$$\sec \theta = \frac{2}{\frac{\sqrt{3}}{2}} = \frac{2\sqrt{3}}{3}$$

degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$
30°	$\frac{\pi}{6}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$

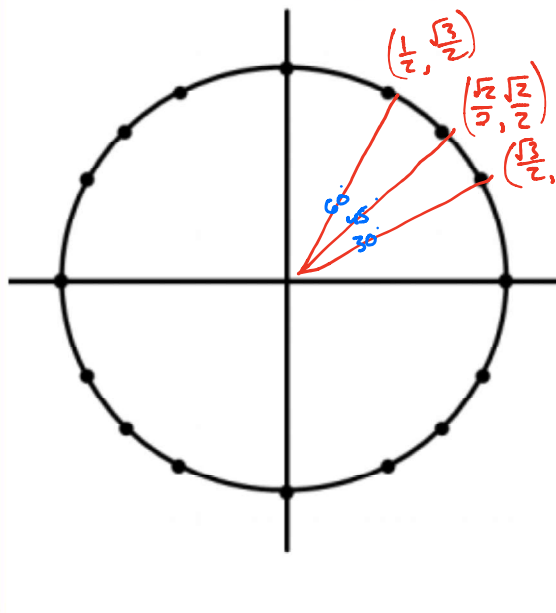
- degree	- radian
-330°	$-\frac{11\pi}{6}$

degrees	radians	$\sin \theta$	$\cos \theta$	$\tan \theta$
90°	$\frac{\pi}{2}$	1	0	und

- degree	- radian
-270°	$-\frac{3\pi}{2}$



If $0^\circ \leq \theta \leq 360^\circ$, then find θ



- a. $\sin \theta = \frac{1}{2}$ $30^\circ, 150^\circ$
- b. $\cos \theta = \frac{1}{2}$ $60^\circ, 300^\circ$
- c. $\tan \theta = -1$ $135^\circ, 315^\circ$
- d. $\sin \theta = \frac{\sqrt{3}}{2}$ $60^\circ, 120^\circ$
- e. $\cos \theta = 0$ $90^\circ, 270^\circ$