

### 9.3 Evaluating Trig Functions

### PRACTICE

Use the table to find the EXACT value.			
1. $\csc 135^\circ$ $\sqrt{2}$	2. $\sin \pi$ 0	3. $\cot\left(-\frac{11\pi}{6}\right)$ $\sqrt{3}$	4. $\sec(-90^\circ)$ undefined
5. $\sin 315^\circ$ $-\frac{\sqrt{2}}{2}$	6. $\sin \frac{7\pi}{6}$ $-\frac{1}{2}$	7. $\tan 765^\circ = \tan 45^\circ$ 1	8. $\cot -\frac{19\pi}{6} = \cot -\frac{7\pi}{6}$ $-\sqrt{3}$
9. $\csc -135^\circ$ $-\sqrt{2}$	10. $\cos -900^\circ = \cos -180^\circ$ -1	11. $\sec -690^\circ = \sec -330^\circ$ $\frac{2\sqrt{3}}{3}$	12. $\tan \frac{11\pi}{6}$ $-\frac{\sqrt{3}}{3}$

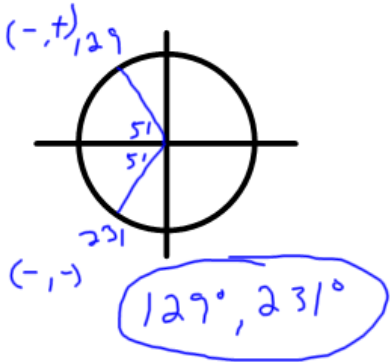
Use the calculator to find the APPROXIMATE value of each.			
13. $\csc 80^\circ$ $\frac{1}{\sin 80} = 1.02$	14. $\cot 15^\circ$ $\frac{1}{\tan 15} = 3.73$	15. $\sec 40^\circ$ $\frac{1}{\cos 40} = 1.31$	16. $\sin 51^\circ$ 0.78
17. $\sin \frac{\pi}{18}$ 0.17	18. $\tan \frac{7\pi}{18}$ 2.75	19. $\cot \frac{23\pi}{90}$ $\frac{1}{\tan \frac{23\pi}{90}} = 0.97$	20. $\cot \frac{\pi}{5}$ $\frac{1}{\tan \frac{\pi}{5}} = 1.38$
21. $\csc \frac{\pi}{18}$ $\frac{1}{\sin \frac{\pi}{18}} = 5.96$	22. $\sec 115^\circ$ $\frac{1}{\cos 115} = -2.37$	23. $\csc \frac{5\pi}{18}$ $\frac{1}{\sin \frac{5\pi}{18}} = 1.31$	24. $\sin 1.2$ (in radians, no degree sign) 0.93

Use the table to find the each angle where $0^\circ \leq \theta \leq 360^\circ$ .			
25. $\cos \theta = -\frac{1}{2}$ $120^\circ, 240^\circ$	26. $\csc \theta = \frac{2\sqrt{3}}{3}$ $60^\circ, 120^\circ$	27. $\tan \theta = \text{undefined}$ $90^\circ, 270^\circ$	28. $\sin \theta = -\frac{\sqrt{2}}{2}$ $225^\circ, 315^\circ$
29. $\csc \theta = 1$ $90^\circ$	30. $\sec \theta = \sqrt{2}$ $45^\circ, 315^\circ$	31. $\tan \theta = 0$ $0^\circ/360^\circ, 180^\circ$	32. $\sin \theta = 0$ $0^\circ/360^\circ, 180^\circ$

Use the calculator to find each angle where $0^\circ \leq \theta \leq 360^\circ$ . Round to the nearest hundredth.		
33. $\cos \theta = 0.7314$ $\cos^{-1}(0.7314) = 43^\circ$  $43^\circ, 317^\circ$	34. $\sin \theta = -0.9336$ $\sin^{-1}(-0.9336) = -69^\circ$ $+ 360^\circ$ $291^\circ$  $249^\circ, 291^\circ$	35. $\tan \theta = 0.4245$ $\tan^{-1}(0.4245) = 23^\circ$  $23^\circ, 203^\circ$

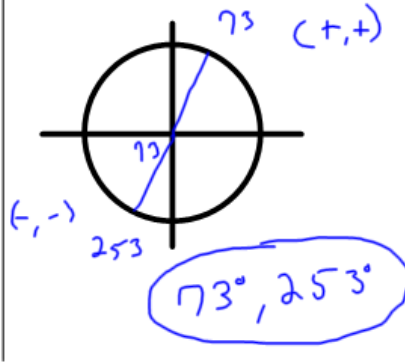
36.  $\sec \theta = -1.589$

$\cos^{-1}\left(\frac{1}{-1.589}\right) = 129^\circ$



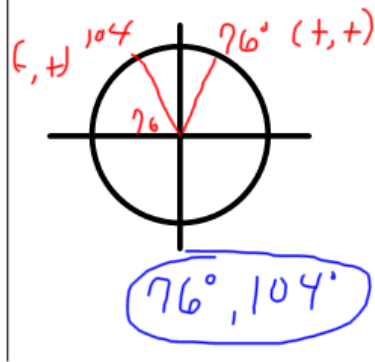
37.  $\cot \theta = 0.30573$

$\tan^{-1}\left(\frac{1}{0.30573}\right) = 73^\circ$



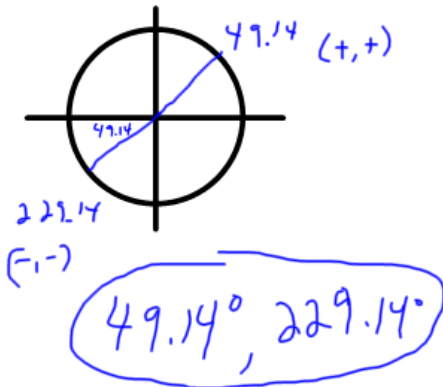
38.  $\csc \theta = 1.0306$

$\sin^{-1}\left(\frac{1}{1.0306}\right) = 76^\circ$



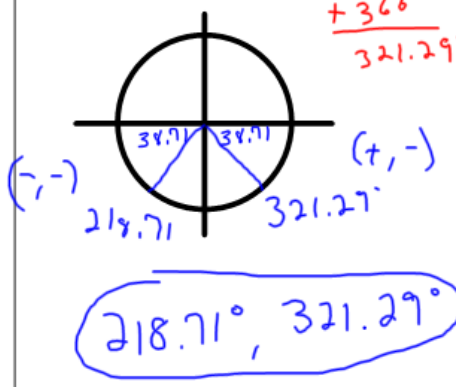
39.  $\tan \theta = 1.156$

$\tan^{-1}(1.156) = 49.14^\circ$



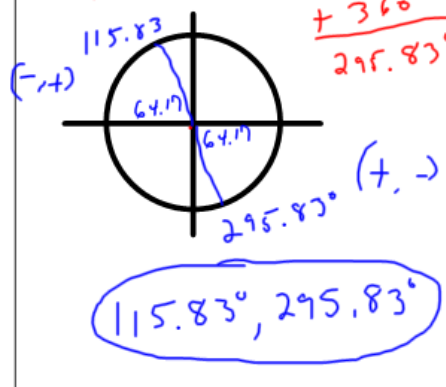
40.  $\sin \theta = -0.6254$

$\sin^{-1}(-0.6254) = -38.71^\circ$   
 $+360$   
 $321.29^\circ$



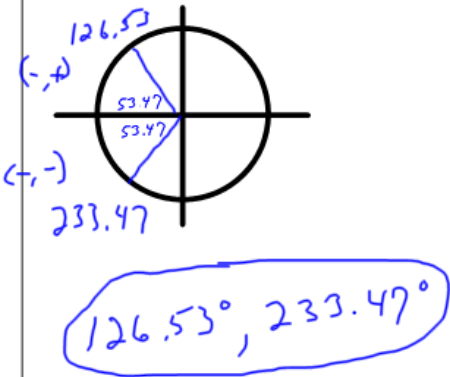
41.  $\cot \theta = -0.484$

$\tan^{-1}\left(\frac{1}{-0.484}\right) = -64.17^\circ$   
 $+360$   
 $295.83^\circ$



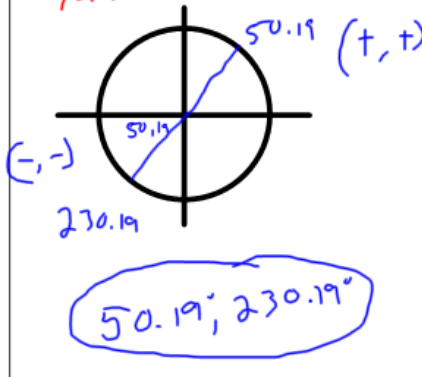
42.  $\sec \theta = -1.68$

$\cos^{-1}\left(\frac{1}{-1.68}\right) = 126.53^\circ$



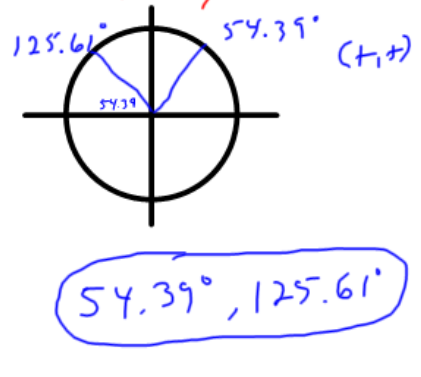
43.  $\tan \theta = 1.2$

$\tan^{-1}(1.2) = 50.19^\circ$



44.  $\csc \theta = 1.23$

$\sin^{-1}\left(\frac{1}{1.23}\right) = 54.39^\circ$



**Skillz Review! Let's put some Trig in our Algebra!**

**SEPARATE FRACTIONS**

$\frac{x+10}{2} = \frac{x}{2} + \frac{10}{2} = \frac{x}{2} + 5$

$\frac{\sin x + 1}{\sin x} = \frac{\cancel{\sin x}}{\cancel{\sin x}} + \frac{1}{\sin x}$

$1 + \csc x$

$\frac{\sin^2 \theta - \sec \theta}{\cos \theta} = \frac{\sin^2 \theta}{\cos \theta} - \frac{\sec \theta}{\cos \theta}$

**MULTIPLY**

$\frac{3}{4} \cdot \frac{5}{4} = \frac{15}{16}$

$\cancel{\cos x} \cdot \frac{1}{\cancel{\cos x}} = 1$

$\tan \theta \cdot \cos \theta =$

$\frac{\sin \theta}{\cos \theta} \cdot \cos \theta = \sin \theta$