

In Exercises 29–34, solve for x in the given interval. You should be able to find these numbers without a calculator, using reference triangles in the proper quadrants.

29. $\sec x = 2, \quad 0 \leq x \leq \pi/2$

30. $\csc x = 2, \quad \pi/2 \leq x \leq \pi$

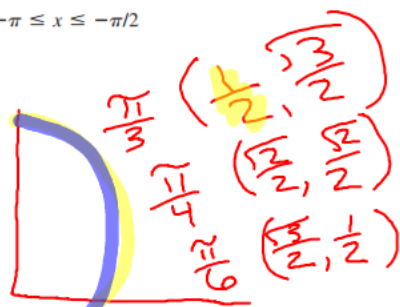
31. $\cot x = -\sqrt{3}, \quad \pi/2 \leq x \leq \pi$

32. $\sec x = -\sqrt{2}, \quad \pi \leq x \leq 3\pi/2$

33. $\csc x = 1, \quad 2\pi \leq x \leq 5\pi/2$

34. $\cot x = 1, \quad -\pi \leq x \leq -\pi/2$

29.



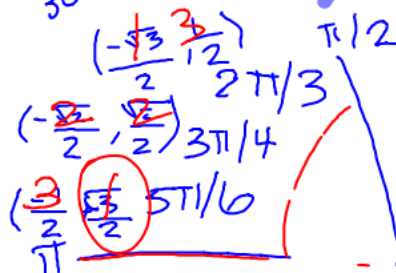
$$\sec x = 2$$

$$\sec x = \frac{1}{\cos x}$$

$$\cos x = \frac{1}{2}$$

$$x = \frac{\pi}{3}$$

30.



$$\csc x = 2$$

$$\csc x = \frac{1}{\sin x} \quad \sin x = \frac{1}{2}$$

$$\csc x = \frac{5\pi}{6}$$

x-axis

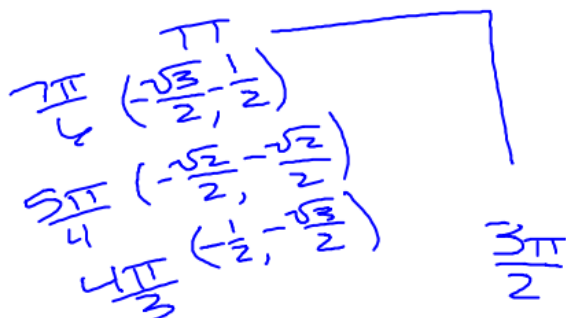
$$x = \frac{5\pi}{6}$$

$$\cot x = -\sqrt{3}$$

$$\cot x = \frac{1}{\tan x} = \frac{\cos x}{\sin x}$$

$$\frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\frac{\sqrt{3}}{2} \cdot \frac{2}{1} = -\sqrt{3}$$

32.



$$\sec x = -\sqrt{2}$$

$$\cos x = \frac{1}{-\sqrt{2}} = -\frac{\sqrt{2}}{2}$$

$$x = \frac{5\pi}{4}$$