

Finding Angles With the Calculator I (Std A4b)

Name _____

Find two negative and two positive solutions to the given trig expression and sketch the two terminal sides on the axes below. Start with angles between 0° and 360°

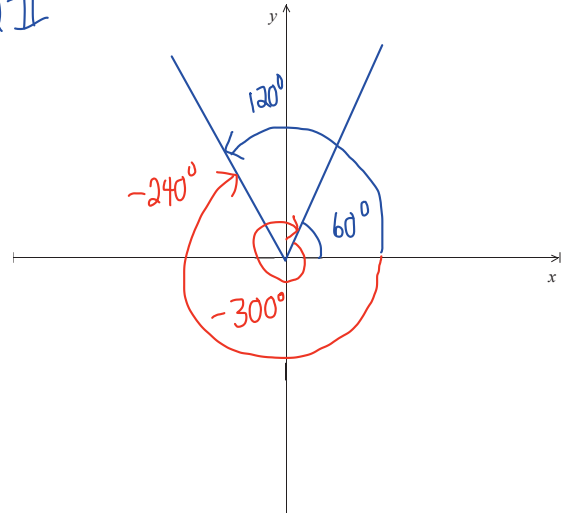
1) $\sin \theta = \frac{\sqrt{3}}{2}$ From the Unit Circle $\sin \theta > 0$ in QI and QII
or using the calculator:

$$\theta = \begin{cases} 60^\circ \pm 360^\circ n \\ 120^\circ \pm 360^\circ n \end{cases}$$

$$\sin^{-1}(\sqrt{3}/2)$$

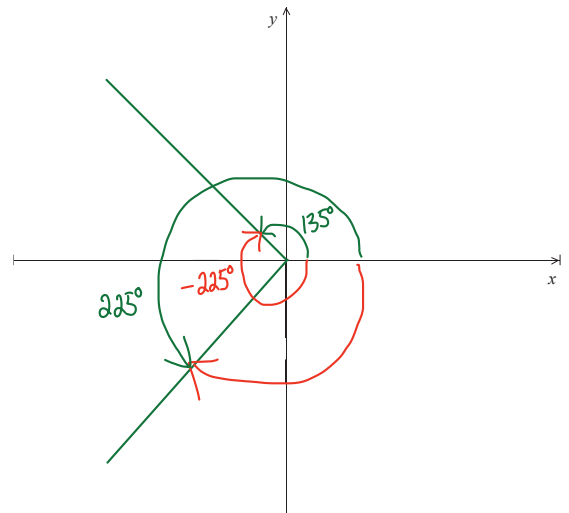
Two positive: $60^\circ, 120^\circ$

Two negative: $60^\circ - 360^\circ = \underline{-300^\circ}, 120^\circ - 360^\circ = \underline{-240^\circ}$



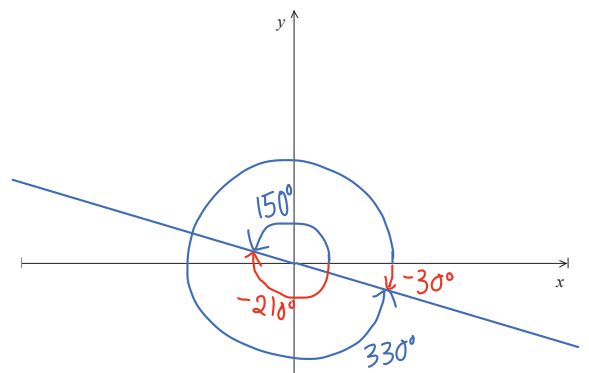
2) $\cos \theta = -\frac{\sqrt{2}}{2} \Rightarrow \theta = 135^\circ, 225^\circ$

$$\theta = 135^\circ, 225^\circ, -135^\circ, -225^\circ$$



3) $\tan \theta = -\frac{\sqrt{3}}{3} = -\frac{1/2}{\sqrt{3}/2} \Rightarrow \theta = 150^\circ, 330^\circ$

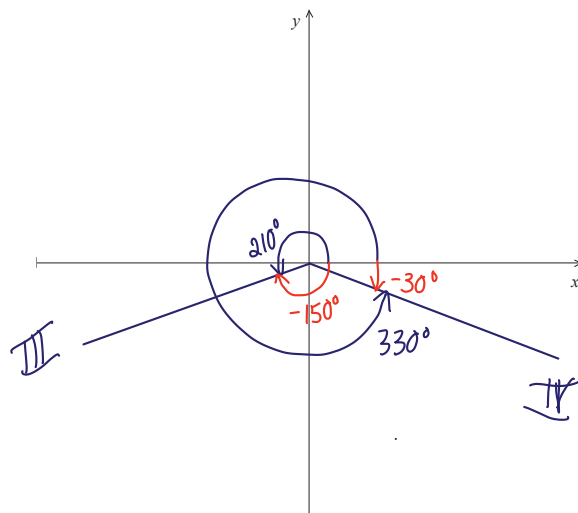
$$\theta = -210^\circ, -30^\circ$$



$$4) \csc \theta = -2 \Rightarrow \sin \theta = -\frac{1}{2}$$

$$\theta = 210^\circ, 330^\circ$$

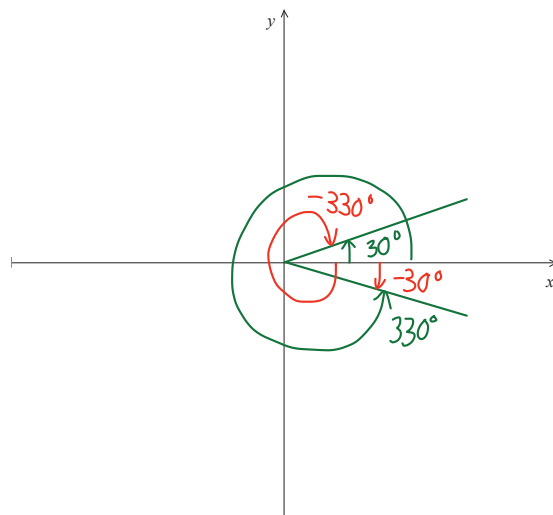
$$= -150^\circ, -30^\circ$$



$$5) \sec \theta = \frac{2\sqrt{3}}{3} \Rightarrow \cos \theta = \frac{3}{2\sqrt{3}} = \frac{\sqrt{3}}{2} \leftarrow \text{Remember that } \frac{3}{\sqrt{3}} = \sqrt{3}$$

$$\theta = 30^\circ, 330^\circ$$

$$-30^\circ, -330^\circ$$



$$\tan \theta = -1 \quad \text{II, IV}$$

$$6) \cot \theta = -1$$

$$\tan \theta = -1 \Rightarrow y = -x \Rightarrow \sin \theta = \cos \theta$$

$$\theta = -45^\circ \pm 180^\circ n$$

$$-45^\circ, 225^\circ, 135^\circ, 315^\circ$$

