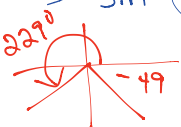**Finding Angles With the Calculator III(Std A4b)**   **Name** Key

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°
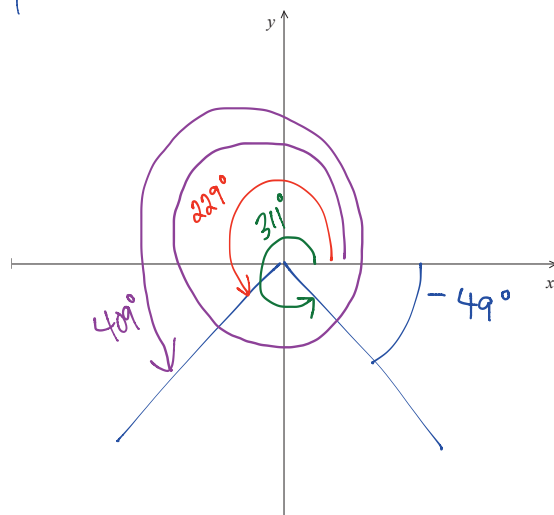
1) $\sin\theta = -0.7547095802 \Rightarrow \sin^{-1}(-0.7547095802) = -49°$

$\theta = \begin{cases} -49° \pm 360n° \\ 229° \pm 360°n \end{cases}$

Two negative: $\underline{-49°}$, $-49 - 360° = \underline{-409°}$
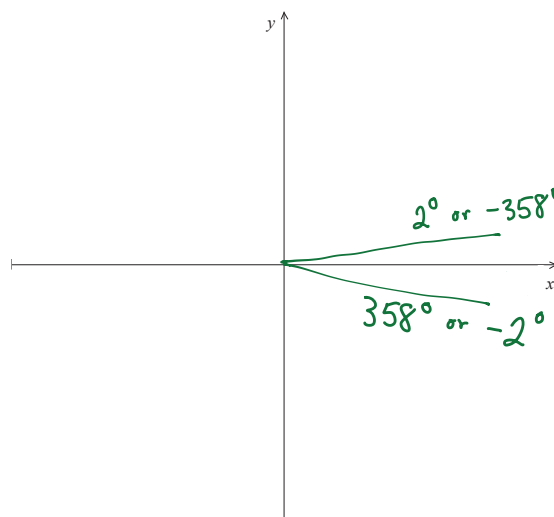
Two positive: $\underline{229°}$, $229° + 360° = \underline{589°}$

Another positive angle could be $-49° + 360° = 311°$

2) $\cos\theta = 0.999390827 \Rightarrow \cos^{-1}(0.999390827) = 2°$

$\theta = \pm2° \pm 360°n$

$\theta = 2°, 358°, -2°, -358°$

3) $\tan\theta = 0.5773502692$

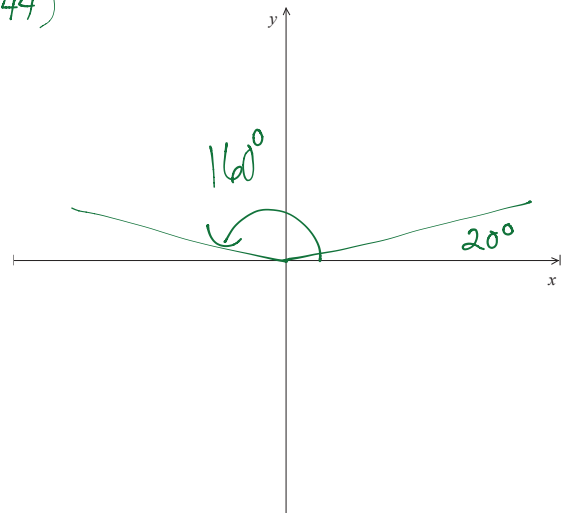$\theta = \tan^{-1}(0.5773502692) = 30°$

$\theta = 30°, 210°, -330°, -150°$
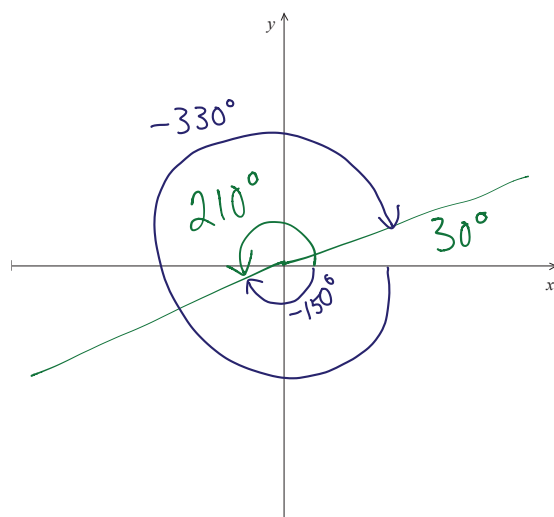
4) $\csc\theta = 2.9238044$ $\Rightarrow$ $\csc^{-1}(2.9238044) = \sin^{-1}\left(\dfrac{1}{2.9238044}\right)$

$$\Rightarrow \theta = 20°, 180 - 20°$$
$$= 20°, 160°$$
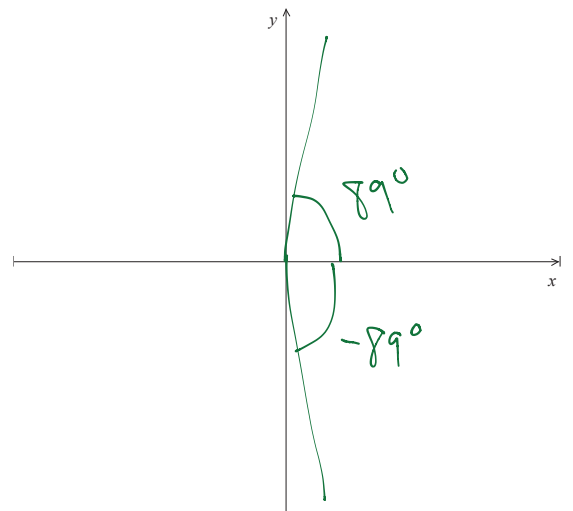$$\theta = 20°, 160°, -200°, -340°$$

5) $\sec\theta = 57.2986885$ $\Rightarrow$ $\cos^{-1}\left(\dfrac{1}{57.2986885}\right)$

$$\theta = \pm 89°$$

$$\theta = 89°, 271°, -89°, -271°$$

6) $\cot\theta = -2.904210878$ $\Rightarrow$ $\tan^{-1}\left(\dfrac{1}{-2.904210878}\right)$

$$\theta = -19°$$

$$\theta = -19°, -199°, 161°, 341°$$