

Let's learn how to use our calculator to approximate trigonometric values. We will round all of our answers to four decimal places. We will start today using degree measure of our angles, so make sure that your calculator is in "*degree mode*".

Ex 1) Find each function value and round your answer to four decimal places.

$$1a) \sin 79.234^\circ \doteq 0.9824$$

$$1b) \cos 87^\circ 17' = \cos 87^\circ + \left(\frac{17}{60}\right)^\circ$$

$$= \cos 87.2833^\circ$$

$$\doteq 0.0474$$

1c) $\cot 34.7^\circ$ For Trig. functions that are not on your calculator use the reciprocal function.

$$\cot 34.7^\circ = \frac{1}{\tan 34.7^\circ}$$

$$= \frac{1}{0.6924}$$

$$= 1.4443$$

Ex 2) Find the measure of the acute angle θ to the nearest tenth of a degree when $\sin \theta = 0.7347$.

To solve for θ we need to use the inverse sin function on your calculator: \sin^{-1}

$$\sin \theta = 0.7347$$

$$\theta = 47.3^\circ$$

Ex 3) Find the measure of the acute angle θ to the nearest minute when $\cot \theta = 0.4498$

There are no cotangent or inverse cotangent buttons on your calculator, so we will have to use the reciprocal of cotangent: tangent and the inverse tangent buttons.

$$\cot \theta = 0.4498$$

$$\tan \theta = \frac{1}{0.4498}$$

$$\tan \theta = 2.2232$$

$$\theta = \tan^{-1} 2.2232$$

$$\theta = 65.7817^\circ$$

$$\theta = 65^\circ + (0.7817 \times 60)$$

$$\theta = 65^\circ 46.9'$$

$$\theta = 65^\circ 47'$$

Ex 4) Find $\sin 253.4^\circ$

$$\sin 253.4^\circ \doteq -0.9583$$

Your calculator knows that sine is negative in quadrant III.

Ex 5) Find to the nearest tenth of a degree the measures of two angles where $\cos \theta = -0.5560$ and $0^\circ < \theta < 360^\circ$.

$$\textcircled{I} \cos \theta = -0.5560$$

$$\theta = \cos^{-1}(-0.5560)$$

$$\theta = 123.7796^\circ$$

$$\theta \doteq 123.8^\circ$$

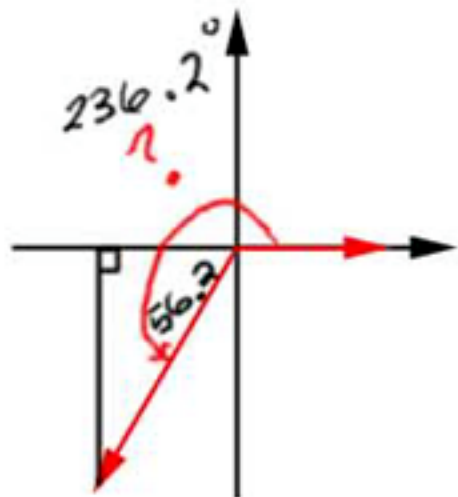
Cosine is negative in Quadrant II and Quadrant III. Our first angle, 123.8° is in Quadrant II, so now we have to find the angle in Quadrant III.

Let's start by finding the reference angle for 123.8° .



$$\begin{array}{r} 180^\circ \\ -123.8^\circ \\ \hline 56.2^\circ \end{array}$$

Draw our reference angle in Quadrant III (Remember Cosine is positive in Quadrant III)



$$\begin{array}{r} 180^\circ \\ + 56.2^\circ \\ \hline 236.2^\circ \end{array}$$