

1316_Notes_2-3_trig-fcns-calculator-approximations

Monday, January 28, 2019 4:44 PM



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2.3.1

Section 2.3 Finding Trigonometric Function values Using a Calculator

Example 1: Use a calculator to approximate the value of each expression.

a) $\sin 41^\circ 30'$ Round to 8 decimal places.

$$41^\circ 30' = 41^\circ + \frac{30}{60}^\circ = 41.5^\circ$$

$$\sin(41.5^\circ) \approx 0.66262005$$

Get it in degree mode.

Look for DEG key

$$\sin(30^\circ) = \frac{1}{2} = 0.5$$

c) $\cot(-68^\circ 13')$ Round to 7 decimal places.

$$-68^\circ 13' = -(68^\circ + \frac{13}{60}^\circ)$$

$$\approx -68.2167^\circ$$

$$\tan(-68.2167^\circ) \approx -2.502289$$

$$\frac{1}{\text{Ans}} \Rightarrow -0.39963408$$

b) $\sec 58^\circ 24'$ Round to 8 decimal places.

$$58^\circ 24' = 58^\circ + \frac{24}{60}^\circ$$

$$= 58.4^\circ$$

$$\cos 58.4^\circ \approx 0.52399$$

Take reciprocal using $\boxed{1/x}$ or $\boxed{x^{-1}}$

or $\boxed{1/\text{Ans}}$. Should get $\boxed{1.90848278}$

Note: $\cos^{-1}(\theta) \neq \sec \theta$

d) $\frac{1}{\cot 31.2^\circ}$ Round to 8 decimal places.

$$\tan(31.2^\circ) = 0.605621527$$

e) $\frac{\cos 64^\circ}{\sin 64^\circ}$ Round to 4 decimal places.

$$\frac{\cos 64^\circ}{\sin 64^\circ} = \cot 64^\circ$$

$$\tan 64^\circ = 2.050303$$

$$\Rightarrow \frac{1}{\tan 64^\circ} = 0.487732589$$

2.3.2

** When the _____ is unknown, we must use the _____ function.

~~Find~~

Find a value of θ in the interval $[0^\circ, 90^\circ]$ that satisfies the given statement.

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

$$*** \csc \theta = 2$$

Example 2:

(Simplify your answer. Type an integer or a decimal. Round to six decimal places if needed.)

skip these

a) $\sin \theta = 0.75629013$

b)

$\sec \alpha = 1.2263156$

skip #40 on review

c) $\cot \beta = 5.9812654$