

Use a calculator to evaluate each function. Round your answers to 4 decimal places.

Be careful you are in the correct mode! Radians/Degrees

1) $\sin 25^\circ = .4226$

2) $\cos 65^\circ = .4226$

3) $\cot 71.5^\circ = .3346$

4) $\sec 42^\circ 12' = 1.3499$

5) $\cos 8^\circ 50' 25'' = .9881$

6) $\tan \frac{\pi}{16} = .1989$

7) $\csc 1.25 = 1.0538$

8) $\csc 0 = \text{undefined}$

Find the value of θ in degrees. Round to the nearest hundredth.

9) $\sin \theta = 0.8191$
 $\theta = \sin^{-1} .8191 = 54.99^\circ$

10) $\cos \theta = 0.9848$
 $\theta = \cos^{-1} .9848 = 10^\circ$

11) $\tan \theta = 1.1920$
 $\theta = \tan^{-1} 1.1920 = 50.01^\circ$

12) $\sec \theta = 1.4123$
 $\cos \theta = \frac{1}{1.4123} = 44.92^\circ$

Find the value of θ in D°M'S". Round to the nearest minute.

13) $\cos \theta = 0.4223$
 $\theta = \cos^{-1} .4223 = 65^\circ 1'$

14) $\tan \theta = 1.5002$
 $\theta = \tan^{-1} 1.5002 = 56^\circ 19'$

15) $\csc \theta = 1.5555$
 $\theta = \sin^{-1} \left(\frac{1}{1.5555} \right) = 40^\circ$

16) $\cot \theta = 2.1234$
 $\theta = \tan^{-1} \left(\frac{1}{2.1234} \right) = 25^\circ 13'$

Solve each of the following triangles. Draw and label a picture for each. Show an equation for each. Round answers to the nearest tenth. *** Show all diagrams and work on notebook paper!***

17) Triangle PQR – given that angle Q is the right angle, angle R is 33° , side q is 18.

18) Triangle JKM – give that angle K is the right angle, angle M is 62.3° , side m is 9

19) Triangle SUT – given that angle T is the right angle, side u = 7.5, side t is 31.3

20) A 30-meter line is used to tether a helium-filled balloon. Because of a breeze, the line makes an angle of approximately 75° with the ground. What is the height of the balloon?

21) From a 60-foot observation tower on the coast, a Coast Guard officer sights a boat in difficulty. The angle of depression of the boat is 4.5° . How far is the boat from the shoreline?

22) A passenger in an airplane flying at an altitude of 37,000 feet sees two towns directly to the left of the airplane. The angles of depression to the towns are 32° and 76° . How far apart are the towns?

23) A boat is 160 miles north and 85 miles east of port. What bearings should be taken to head directly back to port?

Answers:

- 1) 0.4226 2) 0.4226 3) 0.3346 4) 1.3499
5) 0.9881 6) 0.1989 7) 1.0538 8) undefined
9) 54.99° 10) 10.00° 11) 50.01° 12) 44.92°
13) $65^\circ 1'$ 14) $56^\circ 19'$ 15) $40^\circ 0'$ 16) $25^\circ 13'$

- 17) $P = 57^\circ$; $r = 9.8$; $p = 15.1$ 18) $J = 27.7^\circ$; $k = 10.2$; $j = 4.7$ 19) $U = 13.9^\circ$; $S = 76.1^\circ$; $s = 30.4$
20) 29.0 m 21) 762.4 ft 22) 49,987.2 ft 23) S 28.0° W

or $W 62^\circ S$

