

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

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|----------------------------|--------------------------|----------------------|------------------------|
| 1) $\sin 25^\circ$ | 2) $\cos 65^\circ$ | 3) $\cot 71.5^\circ$ | 4) $\sec 42^\circ 12'$ |
| 5) $\cos 8^\circ 50' 25''$ | 6) $\tan \frac{\pi}{16}$ | 7) $\csc 1.25$ | 8) $\csc 0$ |

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

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|---------------------------|----------------------------|----------------------------|----------------------------|
| 9) $\sin \theta = 0.8191$ | 10) $\cos \theta = 0.9848$ | 11) $\tan \theta = 1.1920$ | 12) $\sec \theta = 1.4123$ |
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Find the value of θ in $D^\circ M' S''$. Round to the nearest minute.

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| 13) $\cos \theta = 0.4223$ | 14) $\tan \theta = 1.5002$ | 15) $\csc \theta = 1.5555$ | 16) $\cot \theta = 2.1234$ |
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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:

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|---|---|--|----------------------|
| 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) $S 28.0^\circ W$ |