

Inverse Trigonometric Functions and Right Triangle Trig. Applications (4.7,4.8)

Evaluating Inverse Trigonometric Functions: Find the exact value of each expression. Do not use a calculator.

1) $\sin^{-1} \frac{\sqrt{3}}{2}$

2) $\sin^{-1} \left(-\frac{1}{2} \right)$

3) $\cos^{-1} \frac{\sqrt{2}}{2}$

4) $\cos^{-1} \left(-\frac{\sqrt{3}}{2} \right)$

5) $\tan^{-1} 1$

6) $\tan^{-1} (-\sqrt{3})$

Evaluating Inverse Trigonometric Functions: Find the exact value of each expression, if possible. Do not use a calculator.

7) $\sin^{-1} \left(\cos \frac{2\pi}{3} \right)$

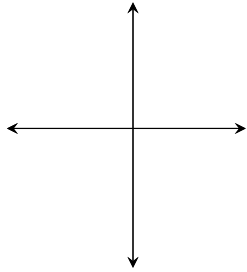
8) $\tan^{-1} \left(\tan \frac{3\pi}{4} \right)$

9) $\tan^{-1} (\tan 410^\circ)$

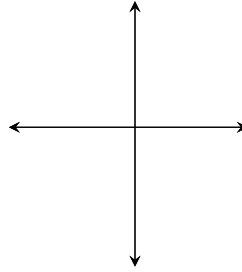
10) $\cos^{-1} \left(\sin \frac{5\pi}{4} \right)$

Evaluating Inverse Trigonometric Functions of Any Angle: Use a sketch to find the exact value of each expression.

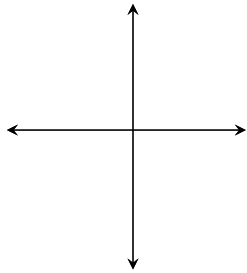
11) $\cot\left(\sin^{-1}\frac{5}{13}\right)$



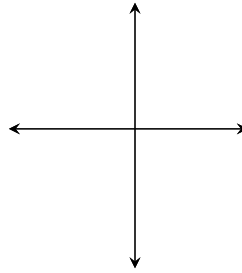
12) $\tan\left[\cos^{-1}\left(-\frac{1}{4}\right)\right]$



13) $\sec\left[\sin^{-1}\left(-\frac{1}{2}\right)\right]$

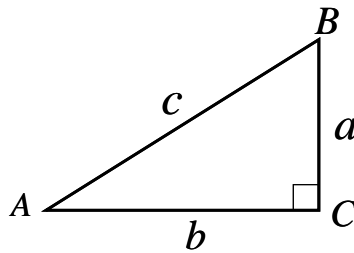


14) $\csc\left[\sin^{-1}\left(-\frac{\sqrt{2}}{2}\right)\right]$



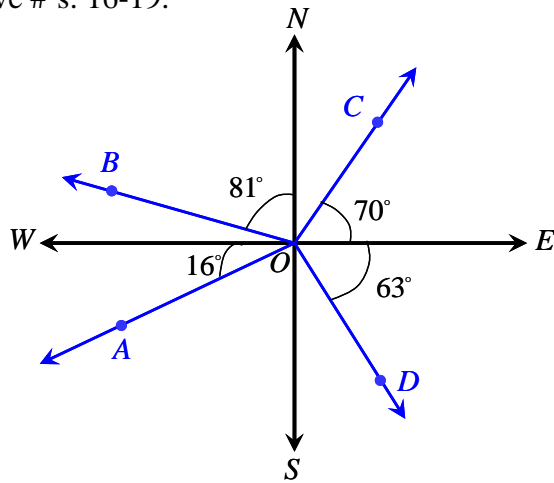
Solving Right Triangles: Solve the right triangle shown in the figure. Round the lengths to two decimal places and the angles to the nearest tenth of a degree.

15) $a = 11.2, c = 65.8$



Bearings: Use the figure below to solve #'s: 16-19.

- The Bearing is the angle formed between the terminal side and the y-axis.
- If the angle is formed with the x-axis, subtract the angle from 90° .
- The bearing is always the vertical direction (N or S), then the angle degree, then the horizontal direction (W or E).



16) Find the bearing from O to A .

17) Find the bearing from O to B .

18) Find the bearing from O to C .

19) Find the bearing from O to D .

Solving Real World Applications: Solve.

20) A 200-foot cliff drops vertically into the ocean. If the angle of elevation from a ship to the top of the cliff is 22.3° , how far, to the nearest foot, is the ship?

21) A ship leaves port with a bearing of $S 40^\circ W$. After traveling 7 miles, the ship turns 90° and travels on a bearing of $N 50^\circ W$ for 11 miles. At that time what is the bearing of the ship from port?