

Find the value of the expression.

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

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

3) $\tan^{-1} 1$ 3) _____

4) $\sin^{-1} 0$ 4) _____

5) $\cos^{-1} \left(-\frac{\sqrt{2}}{2} \right)$ 5) _____

6) $\tan^{-1} -1$ 6) _____

7) $\sin^{-1} -0.5$ 7) _____

8) $\cos^{-1} \left(-\frac{\sqrt{3}}{2} \right)$ 8) _____

9) $\tan^{-1} \left(\frac{\sqrt{3}}{3} \right)$ 9) _____

10) $\sin^{-1} \frac{\sqrt{3}}{2}$ 10) _____

11) $\cos^{-1} \frac{\sqrt{3}}{2}$ 11) _____

12) $\tan^{-1} 0$ 12) _____

Use a calculator to find the value of the expression in radian measure rounded to 2 decimal places.

13) $\sin^{-1}(0.4)$ 13) _____

14) $\cos^{-1} \left(\frac{1}{6} \right)$ 14) _____

15) $\tan^{-1}(1.5)$ 15) _____

16) $\sin^{-1} \left(\frac{\sqrt{5}}{3} \right)$ 16) _____

Find the exact value of the expression.

- 17) $\cos(\cos^{-1}(-0.9372))$ 17) _____
- 18) $\sin[\sin^{-1}(-0.6)]$ 18) _____
- 19) $\tan[\tan^{-1}(0.2)]$ 19) _____
- 20) $\cos(\cos^{-1}(0.45))$ 20) _____
- 21) $\tan[\tan^{-1}(2.35)]$ 21) _____
- 22) True or false? Why? $(\cos(\cos^{-1}(3))) = 3$ 22) _____
- 23) True or false? Why? $\sin^{-1}(\sin(\frac{3\pi}{4})) = \frac{3\pi}{4}$ 23) _____
- 24) True or false? Why? $\tan^{-1}(\tan(\frac{5\pi}{6})) = \frac{5\pi}{6}$ 24) _____
- 25) True or false? $\sin[\sin^{-1}(2)] = 2$ 25) _____

Solve the problem.

- 26) The formula 26) _____

$$D = 24 \left[1 - \frac{\cos^{-1}(\tan i \tan \theta)}{\pi} \right]$$

can be used to approximate the number of hours of daylight when the declination of the sun is i° at a location θ° north latitude for any date between the vernal equinox and autumnal equinox. To use this formula, $\cos^{-1}(\tan i \tan \theta)$ must be expressed in radians. Approximate the number of hours of daylight in Fargo, North Dakota, ($46^\circ 52'$ north latitude) for vernal equinox ($i = 0^\circ$).