Find the exact value of the expression.

1. $\cos\left(\sin^{-1}\frac{\sqrt{2}}{2}\right) =$

$\cos 45^\circ$

$\frac{\sqrt{2}}{2}$

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

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

4. $\sec\left(\cos^{-1}\frac{-1}{2}\right) =$

$\sec(120^\circ)$

$\frac{1}{\cos 120^\circ} = -2$

5. $\cot\left(\sin^{-1}\frac{-1}{2}\right) =$

$\cot(-30^\circ)$

$-\sqrt{3}$

6. $\csc(\tan^{-1}1) = \frac{2}{\sqrt{2}} = \sqrt{2}$

7. $\sin^{-1}(\cos 30^\circ) = 60^\circ$

8. $\cos^{-1}(\sin 45^\circ) = 45^\circ$

9. $\tan^{-1}(\tan 120^\circ) =$

$\tan(-\sqrt{3}) = -60^\circ$

10. $\sin^{-1}\left(\cos\frac{3\pi}{4}\right) = -\frac{\pi}{4}$

11. $\cos^{-1}\left(\sin\frac{7\pi}{6}\right) = \frac{2\pi}{3}$

12. $\cos^{-1}\left(\sin\frac{7\pi}{4}\right) = \frac{3\pi}{4}$

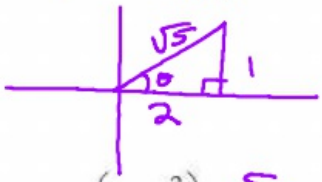
Find the exact value of the expression by drawing a picture and using the Pythagorean Theorem

1. $\cos\left(\sin^{-1}\frac{1}{\sqrt{5}}\right) =$

$\cos\theta = \frac{2}{\sqrt{5}}$

$\sin^{-1}\frac{1}{\sqrt{5}} = \theta$

$\sin\theta = \frac{1}{\sqrt{5}}$

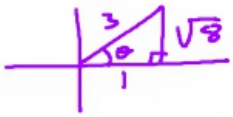


2. $\sin(\tan^{-1}(-3)) = \frac{-3}{\sqrt{10}}$

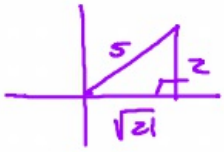
$\tan^{-1} -3 = \theta$

$\tan\theta = -3$

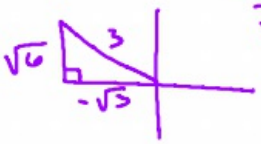
3. $\tan\left(\cos^{-1}\frac{1}{3}\right) = \sqrt{8}$



4. $\sec\left(\sin^{-1}\frac{2}{5}\right) = \frac{5}{\sqrt{21}}$



5. $\cot\left(\cos^{-1}\frac{-\sqrt{3}}{3}\right) =$



$-\frac{\sqrt{3}}{\sqrt{6}}$

$-\sqrt{\frac{3}{6}}$

$-\sqrt{\frac{1}{2}} = \frac{-1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$

6. $\csc\left(\tan^{-1}\frac{1}{2}\right) = \sqrt{5}$