Exercises 9.4

2. (a) $\sin^{-1}\frac{\sqrt{3}}{2} = \frac{\pi}{3}$ (b) $\cos^{-1}\frac{\sqrt{3}}{2} = \frac{\pi}{6}$ (c) $\cos^{-1}(-\frac{\sqrt{3}}{2}) = \frac{5\pi}{6}$

4. (a) $\tan^{-1}\sqrt{3} = \frac{\pi}{3}$ (b) $\tan^{-1}(-\sqrt{3}) = -\frac{\pi}{3}$ (c) $\sin^{-1}\sqrt{3}$ is not defined.

6. (a) $\tan^{-1}1 = \frac{\pi}{4}$ (b) $\tan^{-1}(-1) = -\frac{\pi}{4}$ (c) $\tan^{-1}0 = 0$

8. (a) $\sin^{-1}0 = 0$ (b) $\cos^{-1}0 = \frac{\pi}{2}$ (c) $\cos^{-1}(-\frac{1}{2}) = \frac{2\pi}{3}$

10. (a) $\cos^{-1}(0.3388) \approx 1.22516$ (b) $\tan^{-1}(15.2000) \approx 1.505$

12. $\cos(\cos^{-1}\frac{3}{4}) = \frac{3}{4}$

14. $\sin(\sin^{-1}10)$ does not exist, 10 is not in the domain of the function $\sin^{-1}$.

16. $\tan^{-1}(\tan\frac{\pi}{6}) = \frac{\pi}{6}$

18. Since $\sin\frac{5\pi}{6} = \sin\frac{\pi}{6}$, $\sin^{-1}(\sin\frac{5\pi}{6}) = \frac{\pi}{6}$

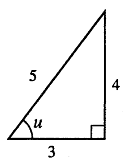
20. Since $\cos(-\frac{\pi}{4}) = \cos\frac{\pi}{4}$, $\cos^{-1}[\cos(-\frac{\pi}{4})] = \frac{\pi}{4}$

22. $\sin(\sin^{-1}0) = 0$

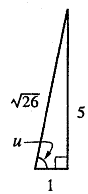
24. $\tan(\sin^{-1}\frac{\sqrt{2}}{2}) = \tan\frac{\pi}{4} = 1$

26. $\cos^{-1}(\sqrt{3}\sin\frac{\pi}{6}) = \cos^{-1}(\sqrt{3}\cdot\frac{1}{2}) = \frac{\pi}{6}$

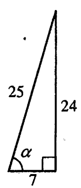
28. Let $u = \sin^{-1}\frac{4}{5}$, so $\sin u = \frac{4}{5}$. Then from the triangle $\tan(\sin^{-1}\frac{4}{5}) = \tan u = \frac{4}{3}$.



30. Let $u = \tan^{-1}5$, so $\tan u = 5$. Then from the triangle $\cos(\tan^{-1}5) = \cos u = \frac{1}{\sqrt{26}}$.



32. Let $\alpha = \cos^{-1}\frac{7}{25}$, so $\cos\alpha = \frac{7}{25}$. Then from the triangle $\csc(\cos^{-1}\frac{7}{25}) = \csc\alpha = \frac{25}{24}$.



34. Let $u = \sin^{-1}\frac{2}{3}$, so $\sin u = \frac{2}{3}$. Then from the triangle $\cot(\sin^{-1}\frac{2}{3}) = \cot u = \frac{\sqrt{5}}{2}$.