

Trigonometry Exercises

(Worth two extra credit points)

Here is a series of problems to familiarize yourself with radian measure, trigonometric functions, and inverse trigonometric functions. In order to benefit from these exercises, you should not use a calculator. For a brief review of trigonometric concepts, consult Appendix D in Stewart.

Problem 1: Convert the degree measure into exact radian measure (no decimals)

1. 360°

2. 270°

3. 180°

4. 90°

5. 60°

6. 45°

7. 30°

8. 1°

9. 0°

Problem 2: Evaluate

1. $\sin(0)$
2. $\sin\left(\frac{\pi}{2}\right)$
3. $\sin\left(-\frac{\pi}{6}\right)$
4. $\sin\left(\frac{3\pi}{2}\right)$
5. $\cos\left(-\frac{\pi}{4}\right)$
6. $\cos\left(-\frac{\pi}{3}\right)$
7. $\cos\left(\frac{7\pi}{6}\right)$
8. $\cos\left(\frac{3\pi}{2}\right)$
9. $\tan(0)$
10. $\tan\left(-\frac{\pi}{6}\right)$
11. $\tan(\pi)$
12. $\csc\left(\frac{\pi}{6}\right)$
13. $\csc\left(-\frac{\pi}{3}\right)$
14. $\csc\left(\frac{5\pi}{3}\right)$
15. $\sec\left(\frac{\pi}{3}\right)$
16. $\sec(-2\pi)$
17. $\cot(0)$
18. $\cot\left(-\frac{\pi}{4}\right)$
19. $\cot\left(-\frac{7\pi}{6}\right)$

Problem 3: Evaluate

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

2. $\arcsin\left(\frac{-1}{\sqrt{2}}\right)$

3. $\arcsin\left(\frac{\sqrt{3}}{2}\right)$

4. $\arcsin(1)$

5. $\cos^{-1}(0)$

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

7. $\arccos\left(\frac{\sqrt{3}}{2}\right)$

8. $\arccos(-1)$

9. $\tan^{-1}(0)$

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

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

12. $\arctan(1)$