Review Exercises

Chapter 6 - Analytic Trigonometry

NON-CALCULATOR.

Establish the following identities**. Show all steps** to receive full credit.

1. $\cot\theta \sec\theta = \csc\theta$

2. $\dfrac{\sin\theta\cos\theta}{1 - \cos^2\theta} = \cot\theta$

3. $\sin\theta(\cot\theta + \tan\theta) = \sec\theta$

4. $(1 - \cos^2\theta)(1 + \cot^2\theta) = 1$

5. $1 - \dfrac{\sin^2\theta}{1 + \cos\theta} = \cos\theta$

6. $\cos^3 y + \cos y \sin^2 y$

Find the **exact value**.

7. $\sin^{-1}(-½)$

8. $\csc^{-1}\sqrt{2}$

9. $\cot^{-1}(-1)$

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

11. $\sec[\tan^{-1}(\sqrt{3}/3)]$

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

13. $\csc[\cot^{-1}(-\sqrt{3})]$

14. $\tan[\sin^{-1}(-4/5)]$

15. $\sin[\sec^{-1}(3/2)]$

16. $\sin 75°$

17. $\cos 195°$

18. $\csc(\pi/12)$

Calculator Active.

19. Solve for **$0° \leq \theta < 360°$.** Round your answers to the nearest tenth of a degree.

a. $5\sec\theta - 6 = 0$

b $\frac{\cos\theta}{4} = -0.2$

c. $1 + 2\sin\theta = 4$

20. Solve for **$0 \leq \theta < 2\pi$**. Round your answers to the nearest hundredth of a radian.

a. $\tan\theta = -1.5$

b. $4\sin 2\theta = 3$

b. $2\sin^2\theta = 3(1 - \cos\theta)$

21. Give a general formula **for all exact** solutions to the equation. Give your answer in radians.

$3\tan\theta + \sqrt{3} = 0$