The Weekly Rigor

30 Problems Solving Simple Trigonometric Equations (Type II)
(Part 2)

SELECTED SOLUTIONS

1. $\csc(\theta) - 2 = 0 \implies \csc(\theta) = 2 \implies \frac{1}{\sin(\theta)} = 2 \implies \sin(\theta) = \frac{1}{2}$.

See *WR* no. 265, problem 1, for the rest of the solution.

13. $\sec^2(\theta) - 4 = 0 \implies \sec^2(\theta) = 4 \implies \frac{1}{\cos^2(\theta)} = 4 \implies \cos^2(\theta) = \frac{1}{4}$.

See *WR* no. 267, problem 27, for the rest of the solution.

14. $\sec(\theta) + 1 = 0 \implies \sec(\theta) = -1 \implies \frac{1}{\cos(\theta)} = -1 \implies \cos(\theta) = -1$.

See *WR* no. 266, problem 19, for the rest of the solution.

15. $\csc(\theta) + \sqrt{2} = 0 \implies \csc(\theta) = -\sqrt{2} \implies \frac{1}{\sin(\theta)} = -\sqrt{2} \implies \sin(\theta) = \frac{-1}{\sqrt{2}}$.

See *WR* no. 265, problem 7, for the rest of the solution.

18. $\sqrt{2}\sec(\theta) + 2 = 0 \implies \sqrt{2}\sec(\theta) = -2 \implies \sec(\theta) = \frac{-2}{\sqrt{2}} \implies$

$\implies \frac{1}{\cos(\theta)} = \frac{-2}{\sqrt{2}} \implies \cos(\theta) = \frac{-\sqrt{2}}{2} = \frac{-\sqrt{2}}{2} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{-2}{2\sqrt{2}} = \frac{-1}{\sqrt{2}}$.

See *WR* no. 266, problem 9, for the rest of the solution.

20. $\csc(\theta) - 1 = 0 \quad \Longrightarrow \quad \csc(\theta) = 1 \quad \Longrightarrow \quad \frac{1}{\sin(\theta)} = 1 \quad \Longrightarrow \quad \sin(\theta) = 1.$

See *WR* no. 266, problem 13, for the rest of the solution.

22. $3\sec^2(\theta) - 4 = 0 \quad \Longrightarrow \quad 3\sec^2(\theta) = 4 \quad \Longrightarrow \quad \sec^2(\theta) = \frac{4}{3} \quad \Longrightarrow$

$\Longrightarrow \quad \frac{1}{\cos^2(\theta)} = \frac{4}{3} \quad \Longrightarrow \quad \cos^2(\theta) = \frac{3}{4}.$

See *WR* no. 267, problem 25, for the rest of the solution.