Extra Trig Equation Solving Practice

Solve over the interval $0 \leq \theta < 2\pi$

1. $\tan\theta = 1$

2. $2\cos^2\theta + \cos\theta = 1$

3. $9\tan^2\theta - 3 = 0$

Find an expression for ALL solutions

4. $\cos\theta = -\frac{1}{2}$

5. $\left(2\cos\theta + \sqrt{3}\right)(2\sin\theta + 1) = 0$

6. $\tan^2\theta = \tan\theta$

Solve over the interval $0 \leq \theta < 2\pi$

7. $4\sin\theta - 1 = 2\sin\theta$

8. $1 - 2\sin^2\theta = \cos\theta$

9. $(\cot\theta)(\tan\theta - 1) = 0$

Find an expression for ALL solutions

10. $\tan\theta = 0$

11. $\sin\theta + 2\sin\theta\cos\theta = 0$

12. $\csc^2\theta = 2\csc\theta$

Solve over the interval $0 \leq \theta < 2\pi$

13. $\sin^2\theta - 1 = 0$

14. $4\cos^2\theta = 5 - 4\sin\theta$

15. $3 - \csc\theta = 2\sin\theta$

Find an expression for ALL solutions

16. $2 + 5\sec\theta = 12$

17. $\csc^2\theta + \cot\theta = 1$

18. $4\sin\theta = 3\csc\theta$

Extra Trig Eqn Solving Practice Answers

1. $\frac{\pi}{4}, \frac{5\pi}{4}$
2. $\pi, \frac{\pi}{3}, \frac{5\pi}{3}$
3. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$
4. $\theta = \frac{2\pi}{3} + 2\pi k$ or $x = \frac{4\pi}{3} + 2\pi k$, $k \in \mathbb{Z}$
5. $\theta = \frac{5\pi}{6} + 2\pi k$ or $\theta = \frac{7\pi}{6} + 2\pi k$ or $\theta = \frac{11\pi}{6} + 2\pi k$, for any integer k
6. $\theta = \pi k$ or $\theta = \frac{\pi}{4} + \pi k$, $k \in \mathbb{Z}$
7. $\frac{\pi}{6}$ or $\frac{5\pi}{6}$
8. $0, \frac{2\pi}{3}, \frac{4\pi}{3}$
9. $\frac{\pi}{4}, \frac{5\pi}{4}$
   (Wondering why $\frac{\pi}{2}$ and $\frac{3\pi}{2}$ are not in the solution set? Although these values make the first factor zero, they also make the second factor undefined)
10. $\theta = k\pi$, $k \in \mathbb{Z}$
11. $\theta = k\pi$ or $\theta = \frac{2\pi}{3} + 2\pi k$ or $\theta = \frac{4\pi}{3} + 2\pi k$, where k is any integer
12. $\theta = \frac{\pi}{6} + 2\pi k$ or $\theta = \frac{5\pi}{6} + 2\pi k$, $k \in \mathbb{Z}$
13. $\frac{\pi}{2}, \frac{3\pi}{2}$
14. $\frac{\pi}{6}, \frac{5\pi}{6}$
15. $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}$
16. $\theta = \frac{\pi}{3} + 2\pi k$ or $\theta = \frac{5\pi}{3} + 2\pi k$, where k is any integer
17. $\theta = \frac{\pi}{2} + \pi k$ or $\theta = \frac{3\pi}{4} + \pi k$, $k \in \mathbb{Z}$
18. $\theta = \frac{\pi}{3} + \pi k$ or $\theta = \frac{2\pi}{3} + \pi k$, where k is any integer