

Solving Trig Equations WS 1

Name _____

Solve the following equations over $[0, 2\pi)$

1. $2\sin x + 1 = 0$

2. $\sqrt{3}\sec x = 2$

3. $\tan x - \sqrt{3} = 0$

4. $\sec^2 x - 2 = 0$

5. $2\cos x - 1 = 0$

6. $2\sin^2 x = 1$

7. $\tan x(\tan x - 1) = 0$

8. $\csc^2 x - 2 = 0$

9. $\sin x(\sin x + 1) = 0$

10. $\sqrt{3}\tan x + 1 = 0$

11. $\sec x + 2 = 0$

12. $\cos x + 1 = 0$

13. $\sec x \csc x - 2 \csc x = 0$

14. $2\sin^2 x + 3\sin x + 1 = 0$

15. $2\cos x \sin x + \cos x = 0$

16. $2\sin^2 x - \sin x - 1 = 0$

17. $2\cot^2 x \sin x = \cot^2 x$

18. $\tan^2 x - 2\tan x + 1 = 0$

19. $\sin x \tan x = -\tan x$

20. $\sin x - \tan x = 0$

21. $(\cos^2 x - 1)(\cot x + 1) = 0$

22. $\cos x(\sec x - 2) = 0$

23. $\sin^2 x \tan x = \tan x$

24. $\cos x = \cot x$

Solving Trig Equations WS 1 – Answers:

1. $\frac{7\pi}{6}, \frac{11\pi}{6}$

2. $\frac{\pi}{6}, \frac{11\pi}{6}$

3. $\frac{\pi}{3}, \frac{4\pi}{3}$

4. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

5. $\frac{\pi}{3}, \frac{5\pi}{3}$

6. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

7. $0, \pi, \frac{\pi}{4}, \frac{5\pi}{4}$

8. $\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}$

9. $0, \pi, \frac{3\pi}{2}$

10. $\frac{5\pi}{6}, \frac{11\pi}{6}$

11. $\frac{2\pi}{3}, \frac{4\pi}{3}$

12. π

13. $\frac{\pi}{3}, \frac{5\pi}{3}$

14. $\frac{3\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$

15. $\frac{\pi}{2}, \frac{3\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$

16. $\frac{\pi}{2}, \frac{7\pi}{6}, \frac{11\pi}{6}$

17. $\frac{\pi}{2}, \frac{3\pi}{2}, \frac{\pi}{6}, \frac{5\pi}{6}$

18. $\frac{\pi}{4}, \frac{5\pi}{4}$

19. $\{0, \pi\}$

20. $\{0, \pi\}$

21. $\left\{ \frac{3\pi}{4}, \frac{7\pi}{4} \right\}$

22. $\left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$

23. $\{0, \pi\}$

24. $\left\{ \frac{\pi}{2}, \frac{3\pi}{2} \right\}$