6.5

Solving Trigonometric Equations

Solve each equation.

1. $5x + 4 = -15x - 56$
2. $5x - 7 = 19$
3. $-\frac{7}{2} = -4 + x$

Find all angles in the interval $[0°, 360°)$ and $[0, 2\pi)$ that satisfy each equation.

4. $\cos(x) = \frac{1}{2}$

5. $\sin(x) = \frac{1}{\sqrt{2}}$

Degrees: _____ Radians: _____   Degrees: _____ Radians: _____

6. $\sin(x) = -\frac{\sqrt{3}}{2}$

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

Degrees: _____ Radians: _____   Degrees: _____ Radians: _____

8. $\cos x = 0$

9. $\sin(x) = -1$

Degrees: _____ Radians: _____

Degrees: _____ Radians: _____

10. $\tan(x) = 0$

11. $\cos(x) = -1$

Degrees: _____ Radians: _____

Degrees: _____ Radians: _____

Find all angles in the interval $[0°, 360°)$ that satisfy each equation.

12. $2\sin\theta + \sqrt{2} = 0$

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

Degrees: _____

Degrees: _____

14. $2\cos\theta - \sqrt{2} = 0$

15. $\tan\theta - 1 = 0$

Degrees: _____

Degrees: _____

16. $\tan\theta = -1$

17. $\sin\theta = -1$

Degrees: _____

Degrees: _____

18. $-\frac{7}{2} = -4 + \sin\theta$

19. $-2 = -3 + \sin\theta$

Degrees: _____

Degrees: _____

20. $5 + \cos\theta = 4 - \cos\theta$ 21. $\frac{1}{2}\sin\theta = -\frac{\sqrt{2}}{4}$

Degrees: _____   Degrees: _____

Review

22. Change $\frac{17\pi}{6}$ to degrees. Show work.

23. Change $315°$ to radians. Show work.

24. Find a positive and a negative coterminal angle for $225°$.

25. Find a positive and a negative coterminal angle for $\frac{5\pi}{3}$.

26. What is the reference angle of $300°$? Hint: Draw a picture.

27. What is the reference angle of $\frac{3\pi}{4}$? Hint: Draw a picture.