PC - Trig Name_____

Solving Trigonometric Equations

Hour____

Solve each equation for $0 \le \theta < 2\pi$.

1) $\sin \theta = 0$

2) $\tan \theta = -\frac{\sqrt{3}}{3}$

Solve each equation for $0 \le \theta < 360$.

3) $-\sqrt{3} = \tan \theta$

4) $\tan \theta = -\frac{\sqrt{3}}{3}$

5) $3\tan \theta = 3$

6) $-\frac{1}{2} \cdot \cos \theta = -\frac{\sqrt{2}}{4}$

7) $1 + \cos\theta = \frac{2 + \sqrt{2}}{2}$

Solve each equation for $0 \le \theta < 2\pi$.

8) $-4\cos\theta = 2\sqrt{3}$

9) $4\cos\theta = -4$

10) $-3\cos\theta = -6$

11) $-\sqrt{3} = 2\sin\theta$

12) $\frac{5}{2} = 2 + \sin\theta$

13) $\frac{8 + \sqrt{2}}{2} = 4 + \sin\theta$

14) $1 + \tan\theta = \frac{3 - \sqrt{3}}{3}$

15) $2\cos\theta = \sqrt{2}$

16) $\frac{-20 - \sqrt{2}}{4} = -5 + \frac{1}{2} \cdot \cos\theta$

17) $-3 + 4\sin\theta = -3$

18) $\frac{5 - \sqrt{3}}{5} = 1 - \frac{3}{5} \cdot \tan\theta$

Answers to Solving Trigonometric Equations

1) $\{0, \pi\}$

2) $\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

3) $\{120, 300\}$

4) $\{150, 330\}$

5) $\{45, 225\}$

6) $\{45, 315\}$

7) $\{45, 315\}$

8) $\left\{\frac{5\pi}{6}, \frac{7\pi}{6}\right\}$

9) $\{\pi\}$

10) No solution.

11) $\left\{\frac{4\pi}{3}, \frac{5\pi}{3}\right\}$

12) $\left\{\frac{\pi}{6}, \frac{5\pi}{6}\right\}$

13) $\left\{\frac{\pi}{4}, \frac{3\pi}{4}\right\}$

14) $\left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$

15) $\left\{\frac{\pi}{4}, \frac{7\pi}{4}\right\}$

16) $\left\{\frac{3\pi}{4}, \frac{5\pi}{4}\right\}$

17) $\{0, \pi\}$

18) $\left\{\frac{\pi}{6}, \frac{7\pi}{6}\right\}$