PC - Functions Name_____

Extreme Solving...as crazy as it gets (for now)

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

1) $3 + \sin\left(3\theta + \frac{4\pi}{3}\right) = 1 + 3\sin\left(3\theta + \frac{4\pi}{3}\right)$

2) $1 - \frac{5}{2} \cdot \csc\left(-3\theta + \frac{\pi}{3}\right) = \frac{2 - \sqrt{2}}{2} - 3\csc\left(-3\theta + \frac{\pi}{3}\right)$

3) $-5 + \cos\left(-4\theta + \frac{7\pi}{4}\right) = \frac{-10 - \sqrt{2}}{2} + 2\cos\left(-4\theta + \frac{7\pi}{4}\right)$

4) $-4 + 5\cot\left(2\theta + \frac{\pi}{4}\right) = 2\sqrt{3} - 4 + 3\cot\left(2\theta + \frac{\pi}{4}\right)$

5) $5 + 4\tan\left(-4\theta + \frac{\pi}{2}\right) = 5 + 2\tan\left(-4\theta + \frac{\pi}{2}\right)$

6) $3 + \frac{4}{3} \cdot \tan\left(2\theta + \frac{7\pi}{4}\right) = \frac{9 + \sqrt{3}}{3} + \tan\left(2\theta + \frac{7\pi}{4}\right)$

7) $4 - 2\cot\left(\frac{\theta}{2} + \frac{\pi}{4}\right) = 4\sqrt{3} + 4 + 2\cot\left(\frac{\theta}{2} + \frac{\pi}{4}\right)$

8) $-2 - 5\tan\left(4\theta + \frac{4\pi}{3}\right) = -2 - 3\tan\left(4\theta + \frac{4\pi}{3}\right)$

9) $-2 + 7\tan\left(2\theta + \frac{5\pi}{6}\right) = 4\sqrt{3} - 2 + 3\tan\left(2\theta + \frac{5\pi}{6}\right)$

10) $\frac{10 + \sqrt{2}}{2} + 2\csc\left(4\theta + \frac{5\pi}{6}\right) = 5 + \frac{3}{2} \cdot \csc\left(4\theta + \frac{5\pi}{6}\right)$

11) $2 - \cos\left(-4\theta + \frac{7\pi}{6}\right) = -1 + 5\cos\left(-4\theta + \frac{7\pi}{6}\right)$

12) $5 - 10\sin\left(\frac{\theta}{3} + \frac{5\pi}{4}\right) = 4\sqrt{3} + 5 - 2\sin\left(\frac{\theta}{3} + \frac{5\pi}{4}\right)$

13) $(\sin\theta - 1)(2\cos\theta + 1) = 0$

Answers to Extreme Solving...as crazy as it gets (for now)

1) $\left\{\frac{7\pi}{18}, \frac{19\pi}{18}, \frac{31\pi}{18}\right\}$

2) $\left\{\frac{7\pi}{36}, \frac{13\pi}{36}, \frac{31\pi}{36}, \frac{37\pi}{36}, \frac{55\pi}{36}, \frac{61\pi}{36}\right\}$

3) $\left\{0, \frac{3\pi}{8}, \frac{\pi}{2}, \frac{7\pi}{8}, \pi, \frac{11\pi}{8}, \frac{3\pi}{2}, \frac{15\pi}{8}\right\}$

4) $\left\{\frac{11\pi}{24}, \frac{23\pi}{24}, \frac{35\pi}{24}, \frac{47\pi}{24}\right\}$

5) $\left\{\frac{\pi}{8}, \frac{3\pi}{8}, \frac{5\pi}{8}, \frac{7\pi}{8}, \frac{9\pi}{8}, \frac{11\pi}{8}, \frac{13\pi}{8}, \frac{15\pi}{8}\right\}$

6) $\left\{\frac{7\pi}{24}, \frac{19\pi}{24}, \frac{31\pi}{24}, \frac{43\pi}{24}\right\}$

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

8) $\left\{\frac{\pi}{6}, \frac{5\pi}{12}, \frac{2\pi}{3}, \frac{11\pi}{12}, \frac{7\pi}{6}, \frac{17\pi}{12}, \frac{5\pi}{3}, \frac{23\pi}{12}\right\}$

9) $\left\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\right\}$

10) $\left\{\frac{5\pi}{48}, \frac{11\pi}{48}, \frac{29\pi}{48}, \frac{35\pi}{48}, \frac{53\pi}{48}, \frac{59\pi}{48}, \frac{77\pi}{48}, \frac{83\pi}{48}\right\}$

11) $\left\{\frac{5\pi}{24}, \frac{3\pi}{8}, \frac{17\pi}{24}, \frac{7\pi}{8}, \frac{29\pi}{24}, \frac{11\pi}{8}, \frac{41\pi}{24}, \frac{15\pi}{8}\right\}$

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

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