1. $\dfrac{1}{\sec^2\theta}+\dfrac{1}{\csc^2\theta}=1$

$\cos^2\theta+\sin^2\theta$

1

2. $\dfrac{\tan\theta\cos\theta}{\sin\theta}=1$

$\dfrac{\dfrac{\sin\theta}{\cos\theta}\cdot\cos\theta}{\sin\theta}$

$\dfrac{\sin\theta}{\sin\theta}$

1

3. $\dfrac{\sin\theta}{\csc\theta}+\dfrac{\cos\theta}{\sec\theta}=1$

$$\frac{\sin\theta}{\frac{1}{\sin\theta}}+\frac{\cos\theta}{\frac{1}{\cos\theta}}$$

$$\sin\theta\cdot\sin\theta+\cos\theta\cdot\cos\theta$$

$$\sin^2\theta+\cos^2\theta$$

$$1$$

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

$$\cos^2\theta(1+\tan^2\theta)$$

$$\cos^2\theta\cdot\sec^2\theta$$

$$\cancel{\cos^2\theta}\cdot\frac{1}{\cancel{\cos^2\theta}}$$

$$1$$

5. $\sin\theta + \cos\theta = \dfrac{1+\tan\theta}{\sec\theta}$

$$\frac{1}{\sec\theta} + \frac{\tan\theta}{\sec\theta}$$

$$\cos\theta + \frac{\frac{\sin\theta}{\cos\theta}}{\cos\theta}$$

$$\cos\theta + \frac{\sin\theta}{\cos\theta}\cdot\frac{\cos\theta}{\cos\theta}$$

$$\cos\theta + \sin\theta$$

6. $\dfrac{\cos\theta}{1+\sin\theta} + \dfrac{\cos\theta}{1-\sin\theta} = 2\sec\theta$

$$\frac{\cos\theta(1-\sin\theta) + \cos\theta(1+\sin\theta)}{(1-\sin^2\theta)}$$

$$\frac{\cos\theta - \cos\theta\sin\theta + \cos\theta + \cos\theta\sin\theta}{\cos^2\theta}$$

$$\frac{2\cos\theta}{\cos^2\theta} = \frac{2}{\cos\theta} = 2\sec\theta$$

7. $2\cos^2\theta$ - $5\cos\theta + 2 = 0$

$\cos^2\theta - 5\cos\theta + 4 = 0$

$(\cos\theta - \frac{4}{2})(\cos\theta - \frac{1}{2}) = 0$

$(\cos\theta - 2) = 0$ $(\cos\theta - \frac{1}{2}) = 0$

$\cos\theta = 2$ | $\cos\theta = \frac{1}{2}$

X

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

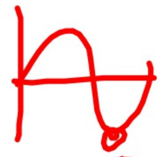
8. $\sin^2\theta = 2\sin\theta + 3$

$\sin^2\theta - 2\sin\theta - 3 = 0$

$(\sin\theta - 3)(\sin\theta + 1) = 0$

$\sin\theta = 3$ | $\sin\theta = -1$

X



$\frac{3\pi}{2}$

9. $3\tan^2\theta + 4\sec\theta = -4$

$3(\sec^2\theta - 1) + 4\sec\theta = -4$

$3\sec^2\theta - 3 + 4\sec\theta + 4 = 0$

$3\sec^2\theta + 4\sec\theta + 1 = 0$

$\sec^2\theta + 4\sec\theta + 3$

$(\sec\theta + 3)(\sec\theta + 1)$

$(\sec\theta + 1)(\sec\theta + \frac{1}{3}) = 0$

$\sec\theta = -1$ | $\sec\theta = -\frac{1}{3}$

$\cos\theta = -1$ | $\cos\theta = -3$

X

10. $2\sin\theta\cos\theta + 4\sin\theta = \cos\theta + 2$

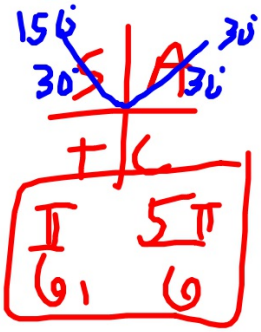
$2\sin\theta(\cos\theta + 2) = (\cos\theta + 2)$

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

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

$\cos\theta = -2$ | $\sin\theta = \frac{1}{2}$

X



11. $\csc^2\theta - 2 = 0$

$\sqrt{\csc^2\theta} = \sqrt{2}$

$\csc\theta = \pm\sqrt{2}$

$\sin\theta = \pm\frac{1}{\sqrt{2}} = \pm\frac{\sqrt{2}}{2}$

−	A
T	C

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

12. $-\tan^2\theta + 2\tan\theta + 3 = 0$

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

$(\tan\theta - 3)(\tan\theta + 1) = 0$

$\tan\theta = 3$ | $\tan\theta = -1$

S	71.57
71.57 T	C

45	A
T	C 45

$71.57°$, $251.57°$

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

42.0# 11-14, 17-20, 22, 25, 26, 33, 35, 39-41