

Math 1060 4.4.18
in $(0, 2\pi)$ solve $\sin^2\theta + \cos^2\theta = 1$
 $2(\sec^2\theta)\tan\theta = 4\tan\theta \quad (\tan^2\theta + 1) = \sec^2\theta$

$$2(\tan^2\theta + 1)\tan\theta = 4\tan\theta$$

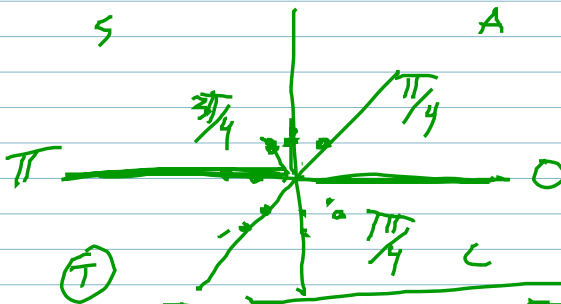
$$2\tan^3\theta + 2\tan\theta = 4\tan\theta$$

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

$$2\tan\theta(\tan^2\theta - 1) = 0$$

$$\downarrow \qquad \qquad \downarrow$$
$$\underline{\tan\theta = 0} \quad \tan^2\theta = 1$$

$$\tan\theta = 1, \tan\theta = -1$$



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

Math 1060 4.4.18

in $[0, 2\pi)$

SOLVE

$$\sin^2\theta + \cos^2\theta = 1$$

$$2(\sec^2\theta)\tan\theta = 4\tan\theta \quad (\tan^2\theta + 1) = \sec^2\theta$$

$$2(\tan^2\theta + 1)\tan\theta = 4\tan\theta$$

$$2\tan^3\theta + 2\tan\theta = 4\tan\theta$$

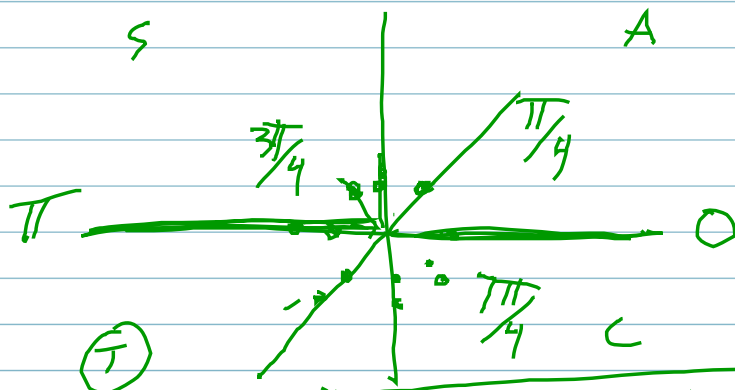
$$2\tan^3\theta - 2\tan\theta = 0$$

$$2\tan\theta(\tan^2\theta - 1) = 0$$

$$\downarrow$$
$$\underline{\tan\theta = 0}$$

$$\downarrow$$
$$\tan^2\theta = 1$$

$$\tan\theta = 1, \tan\theta = -1$$



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