$$\operatorname{sen} 2\alpha = \operatorname{sen}(\alpha+\alpha) = \operatorname{sen}\alpha\cos\alpha + \cos\alpha\operatorname{sen}\alpha$$
$$= 2\operatorname{sen}\alpha\cos\alpha$$

$$\cos 2\alpha = \cos(\alpha+\alpha) = \cos^2\alpha - \operatorname{sen}^2\alpha$$
$$= 1 - 2\operatorname{sen}^2\alpha$$
$$= 2\cos^2\alpha - 1$$

$$\operatorname{sen}^2\alpha + \cos^2\alpha = 1$$
$$\operatorname{sen}^2\alpha = 1 - \cos^2\alpha$$
$$\cos^2\alpha = 1 - \operatorname{sen}^2\alpha$$

$$\operatorname{tg} 2\alpha = \operatorname{tg}(\alpha+\alpha) = \frac{2\operatorname{tg}\alpha}{1 - \operatorname{tg}^2\alpha}$$

$x^2 \cdot \operatorname{sen} 30^\circ = x+1$

↓ NO

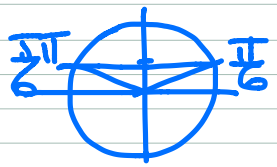
$x^2 \cdot \frac{1}{2} - x - 1 = 0$

$2\operatorname{sen} x - 1 = 0$

↓ SÍ

$2\operatorname{sen} x = 1$

$\operatorname{sen} x = \frac{1}{2}$



$x = \frac{\pi}{6} + 2k\pi \quad k \in \mathbb{Z}$

$x = \frac{5\pi}{6} + 2k\pi$

$\cos x = 0$

$x = \frac{\pi}{2} + k\pi$