Exercices de vérification

1. Démontrer les identités trigonométriques suivantes :
   a. $\cos^2 x + \sec^2 x \sin^2 x \cos^2 x = 1$
   b. $\dfrac{\sin^2 x - \sin^4 x}{\cos^4 x - \cos^2 x} = -1$

2. Trouver toutes les solutions des équations trigonométriques suivantes :
   a. $x\left(2\sin x + \sqrt{3}\right) = 0$
   b. $\sin x \cos x - \cos^2 x = 0$

Réponses :

Afficher

1.

a.

$$\cos^2 x + \sec^2 x \sin^2 x \cos^2 x = 1$$

$$\cos^2 x + \frac{1}{\cos^2 x} \sin^2 x \cos^2 =$$

$$\cos^2 x + \sin^2 x =$$

$$1 =$$

■

b.

$$\frac{\sin^2 x - \sin^4 x}{\cos^4 x - \cos^2 x} = -1$$

$$\frac{\sin^2 x \left(1 - \sin^2 x\right)}{-\cos^2 x \left(-\cos^2 x + 1\right)} =$$

$$\frac{\sin^2 x \cos^2 x}{-\cos^2 x \sin^2 x} =$$

$$-1 =$$

■

2.

a.

$$S = \{0\} \cup \left\{x \in \mathbb{R} | x = \frac{4Pi}{3} + n\pi, n \in \mathbb{N}\right\} \cup \left\{x \in \mathbb{R} | x = \frac{5Pi}{3} + n\pi, n \in \mathbb{N}\right\}$$

3.

$$\cos x = 0 \text{ ou } \tan x = 0$$

$$S = \left\{x \in \mathbb{R} | x = \frac{\pi}{2} + n\pi, n \in \mathbb{N}\right\} \cup \left\{x \in \mathbb{R} | x = \frac{Pi}{4} + n\pi, n \in \mathbb{N}\right\}$$