



حل في المجموعة $\mathbb{R}$ المعادلات التالية :

$$\sqrt{3} \sin x + \cos x = 2 \quad (3) \quad 2 \cos 4x + \sin 3x = 3 \quad (2) \quad \tan x + \tan 3x = 0 \quad (1)$$

$$\cos 3x + \sin 2y = 2 \quad (6) \quad 3 \sin 2x - 2 \cos 3x = 5 \quad (5) \quad \tan x \tan 2x = 1 \quad (4)$$

$$\cos 5x + \sin x = 2 + \cos^2 x \quad (8) \quad \frac{\sin x + \sin 3x + \sin 5x}{\cos x + \cos 3x + \cos 5x} = \sqrt{3} \quad (7)$$



$$\tan \frac{\pi}{12} \text{ استنتج قيمة } \left(\forall x \in \left] 0, \frac{\pi}{2} \right[\right) \tan^2 \frac{x}{2} = \left(\frac{1 - \cos x}{\sin x} \right)^2 \quad (1)$$

$$\tan \frac{\pi}{8} \text{ استنتج } \frac{1 - \sin(2x)}{1 + \sin(2x)} = \tan^2 \left(\frac{\pi}{4} - x \right) \quad (2)$$



$$\cos x + \cos \left(x + \frac{\pi}{3} \right) + \cos \left(x + \frac{2\pi}{3} \right) = 0 \quad (1) \quad \text{بيد ما يلي :}$$

$$\sin x + \sin \left(x + \frac{\pi}{3} \right) + \sin \left(x + \frac{2\pi}{3} \right) = 0 \quad (2)$$



$$B(x) = \cos^3 x - \sin^3 x + \frac{3\sqrt{2}}{4} \sin \left(x - \frac{\pi}{4} \right) \quad \text{نضج}$$

$$\cos^3 x - \sin^3 x = \frac{1}{2} (\cos x - \sin x) (2 + \sin 2x) \quad (1) \quad \text{بيد أنه}$$

$$B(x) = 0 \quad \text{حل في } \mathbb{R} \text{ المعادلة} \quad (2)$$

$$A(x) = -\frac{\sqrt{2}}{4} \sin \left(x - \frac{\pi}{4} \right) (1 + 2 \sin 2x) \quad (3) \quad \text{بيد أنه}$$

$$B(x) \geq 0 \quad \text{المتراجعة } \left] -\frac{\pi}{4}, \frac{\pi}{4} \right[\quad (4) \quad \text{حل في المجال}$$



$$B = 3 \cos^2 x + 2 \sin^2 x + \sin^2 2x \quad \text{و} \quad A = 3 \cos^2 x - 5 \sin^2 x \quad \text{: التعبير التالي}$$



$$\cos x \text{ بدلالة } \cos 3x \quad \text{و} \quad \sin x \text{ بدلالة } \sin 3x \quad (1) \quad \text{عبر عنه}$$

$$4 \sin x \sin \left(\frac{\pi}{3} - x \right) \sin \left(\frac{\pi}{3} + x \right) = \sin(3x) \quad (2) \quad \text{بيد أنه}$$

$$\sin(3x) \sin^3 x + \cos(3x) \cos^3 x = \cos^3 2x \quad (3) \quad \text{بيد أنه}$$