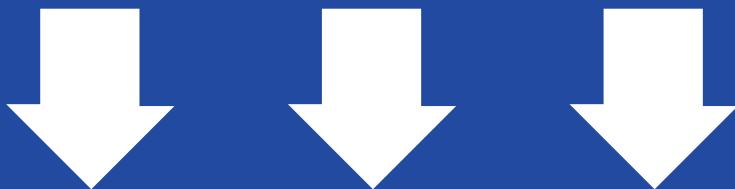


Spé Maths Terminale

Trigonométrie :
Généralités



CORRIGÉ DE L'EXERCICE

SIMPLIFIER DES EXPRESSIONS ...

CORRECTION

1. Simplifions l'expression A:

$$\begin{aligned}
 A &= I + \frac{\sqrt{3}}{2} + \cos\left(\frac{\pi}{3}\right) + \cos\left(\frac{\pi}{2}\right) + \cos\left(\frac{2\pi}{3}\right) + \cos\left(\pi - \frac{\pi}{6}\right) \\
 &= I + \frac{\sqrt{3}}{2} + \frac{1}{2} + 0 + \cos\left(\pi - \frac{\pi}{3}\right) - \cos\left(\frac{\pi}{6}\right) \\
 &= I + \frac{\sqrt{3}}{2} + \frac{1}{2} + 0 - \cos\left(\frac{\pi}{3}\right) - \frac{\sqrt{3}}{2} \\
 &= I + \frac{\sqrt{3}}{2} + \frac{1}{2} + 0 - \frac{1}{2} - \frac{\sqrt{3}}{2}.
 \end{aligned}$$

Au total: $A = I$.

2. Simplifions l'expression B:

$$\begin{aligned}
 B &= 2 \sin\left(\pi - \frac{\pi}{6}\right) - \cos\left(\frac{5\pi}{4}\right) - \sin\left(\frac{\pi}{3}\right) \quad \left(-\sin(x) = \cos\left(\frac{\pi}{2} + x\right)\right) \\
 &= 2 \sin\left(\frac{\pi}{6}\right) - \cos\left(\pi + \frac{\pi}{4}\right) - \frac{\sqrt{3}}{2}
 \end{aligned}$$

$$= 2 \times \frac{1}{2} - \left(-\cos\left(\frac{\pi}{4}\right) \right) - \frac{\sqrt{3}}{2}$$

$$= 1 + \cos\left(\frac{\pi}{4}\right) - \frac{\sqrt{3}}{2}$$

$$= 1 + \frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2}.$$

Au total: $B = \frac{1}{2}(2 + \sqrt{2} - \sqrt{3})$.