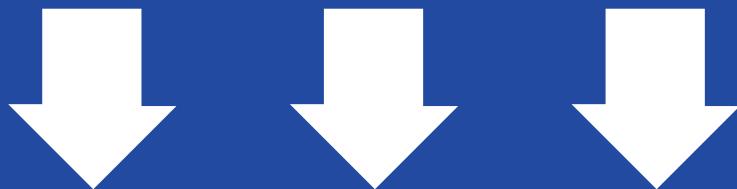


Spé Maths Terminale

Trigonométrie :
Généralités



CORRIGÉ DE L'EXERCICE

À PROPOS DE SOMMES EN TRIGONOMÉTRIE

CORRECTION

1.a.a, Calculons $\cos\left(\frac{\pi}{2}\right) + \cos\left(\frac{\pi}{4}\right)$:

$$\cos\left(\frac{\pi}{2}\right) + \cos\left(\frac{\pi}{4}\right) = 0 + \frac{\sqrt{2}}{2} = \frac{\sqrt{2}}{2}.$$

a₂, Calculons $\cos\left(\frac{\pi}{2} + \frac{\pi}{4}\right)$:

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

b.b, Calculons $\cos\left(\frac{\pi}{3}\right) - \cos\left(\frac{\pi}{6}\right)$:

$$\cos\left(\frac{\pi}{3}\right) - \cos\left(\frac{\pi}{6}\right) = \frac{1}{2} - \frac{\sqrt{3}}{2} = \frac{1}{2}(1 - \sqrt{3}).$$

b₂, Calculons $\cos\left(\frac{\pi}{3} - \frac{\pi}{6}\right)$:

$$\cos\left(\frac{\pi}{3} - \frac{\pi}{6}\right) = \cos\left(\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}.$$

c.c, Calculons $\sin\left(\frac{2\pi}{3}\right) + \sin\left(\frac{\pi}{6}\right)$:

$$\sin\left(\frac{2\pi}{3}\right) + \sin\left(\frac{\pi}{6}\right) = \sin\left(\pi - \frac{\pi}{3}\right) + \sin\left(\frac{\pi}{6}\right) = \sin\left(\frac{\pi}{3}\right) + \sin\left(\frac{\pi}{6}\right)$$

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

c₂. Calculons $\sin\left(\frac{2\pi}{3} + \frac{\pi}{6}\right)$:

$$\sin\left(\frac{2\pi}{3} + \frac{\pi}{6}\right) = \sin\left(\frac{5\pi}{6}\right) = \sin\left(\pi - \frac{\pi}{6}\right) = \sin\left(\frac{\pi}{6}\right) = \frac{1}{2}.$$

d.d, Calculons $\sin\left(\frac{2\pi}{3}\right) - \sin\left(\frac{\pi}{6}\right)$:

$$\sin\left(\frac{2\pi}{3}\right) - \sin\left(\frac{\pi}{6}\right) = \sin\left(\pi - \frac{\pi}{3}\right) - \sin\left(\frac{\pi}{6}\right) = \sin\left(\frac{\pi}{3}\right) - \sin\left(\frac{\pi}{6}\right)$$

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

d₂. Calculons $\sin\left(\frac{2\pi}{3} - \frac{\pi}{6}\right)$:

$$\sin\left(\frac{2\pi}{3} - \frac{\pi}{6}\right) = \sin\left(\frac{\pi}{2}\right) = 1.$$

2. Qu'en déduire ?

- Pour tous réels x et y :
- $\cos(x + y) \neq \cos(x) + \cos(y);$
 - $\cos(x - y) \neq \cos(x) - \cos(y);$
 - $\sin(x + y) \neq \sin(x) + \sin(y);$
 - $\sin(x - y) \neq \sin(x) - \sin(y).$