

Interro 29.01.26 11^eSciences 30 minutes LPMT

1) Sachant que $\frac{\pi}{12} = \frac{\pi}{3} - \frac{\pi}{4}$; Calcule $\cos\left(\frac{\pi}{12}\right)$, $\sin\left(\frac{\pi}{12}\right)$ et $\tan\left(\frac{\pi}{12}\right)$

En déduis $\cos\left(-\frac{\pi}{12}\right)$, $\cos\left(\frac{11\pi}{12}\right)$, $\cos\left(\frac{13\pi}{12}\right)$, $\cos\left(\frac{35\pi}{12}\right)$, $\sin\left(-\frac{\pi}{12}\right)$, $\sin\left(\frac{11\pi}{12}\right)$, $\sin\left(\frac{13\pi}{12}\right)$, $\sin\left(\frac{35\pi}{12}\right)$

2) Calcule

$$A = \cos\frac{\pi}{8} + \cos\frac{3\pi}{8} + \cos\frac{5\pi}{8} + \cos\frac{7\pi}{8}; \quad B = \cos^2\frac{\pi}{8} + \cos^2\frac{3\pi}{8} + \cos^2\frac{5\pi}{8} + \cos^2\frac{7\pi}{8}$$

$$\text{On donne } E = \cos^2\frac{\pi}{12} + \cos^2\frac{\pi}{4} + \cos^2\frac{5\pi}{12} + \cos^2\frac{7\pi}{12} + \cos^2\frac{3\pi}{4} + \cos^2\frac{11\pi}{12}$$

Montre que E est un entier naturel.

Interro 29.01.26 11^eSciences 30 minutes LPMT

1) Sachant que $\frac{\pi}{12} = \frac{\pi}{3} - \frac{\pi}{4}$; Calcule $\cos\left(\frac{\pi}{12}\right)$, $\sin\left(\frac{\pi}{12}\right)$ et $\tan\left(\frac{\pi}{12}\right)$

En déduis $\cos\left(-\frac{\pi}{12}\right)$, $\cos\left(\frac{11\pi}{12}\right)$, $\cos\left(\frac{13\pi}{12}\right)$, $\cos\left(\frac{35\pi}{12}\right)$, $\sin\left(-\frac{\pi}{12}\right)$, $\sin\left(\frac{11\pi}{12}\right)$, $\sin\left(\frac{13\pi}{12}\right)$, $\sin\left(\frac{35\pi}{12}\right)$

2) Calcule

$$A = \cos\frac{\pi}{8} + \cos\frac{3\pi}{8} + \cos\frac{5\pi}{8} + \cos\frac{7\pi}{8}; \quad B = \cos^2\frac{\pi}{8} + \cos^2\frac{3\pi}{8} + \cos^2\frac{5\pi}{8} + \cos^2\frac{7\pi}{8}$$

$$\text{On donne } E = \cos^2\frac{\pi}{12} + \cos^2\frac{\pi}{4} + \cos^2\frac{5\pi}{12} + \cos^2\frac{7\pi}{12} + \cos^2\frac{3\pi}{4} + \cos^2\frac{11\pi}{12}$$

Montre que E est un entier naturel.

Interro 29.01.26 11^eSciences 30 minutes LPMT

1) Sachant que $\frac{\pi}{12} = \frac{\pi}{3} - \frac{\pi}{4}$; Calcule $\cos\left(\frac{\pi}{12}\right)$, $\sin\left(\frac{\pi}{12}\right)$ et $\tan\left(\frac{\pi}{12}\right)$

En déduis $\cos\left(-\frac{\pi}{12}\right)$, $\cos\left(\frac{11\pi}{12}\right)$, $\cos\left(\frac{13\pi}{12}\right)$, $\cos\left(\frac{35\pi}{12}\right)$, $\sin\left(-\frac{\pi}{12}\right)$, $\sin\left(\frac{11\pi}{12}\right)$, $\sin\left(\frac{13\pi}{12}\right)$, $\sin\left(\frac{35\pi}{12}\right)$

2) Calcule

$$A = \cos\frac{\pi}{8} + \cos\frac{3\pi}{8} + \cos\frac{5\pi}{8} + \cos\frac{7\pi}{8}; \quad B = \cos^2\frac{\pi}{8} + \cos^2\frac{3\pi}{8} + \cos^2\frac{5\pi}{8} + \cos^2\frac{7\pi}{8}$$

$$\text{On donne } E = \cos^2\frac{\pi}{12} + \cos^2\frac{\pi}{4} + \cos^2\frac{5\pi}{12} + \cos^2\frac{7\pi}{12} + \cos^2\frac{3\pi}{4} + \cos^2\frac{11\pi}{12}$$

Montre que E est un entier naturel.