

Exercice 1

Maths-inter.ma

4pts

Soit x un réel tel que $x \in [0, \pi]$, on pose : $A(x) = \frac{1}{\sin^2 x + 2\cos^2 x}$

- 1) Calculer $A(0)$; $A(\frac{\pi}{4})$ et $A(\frac{\pi}{6})$ 0,75pts
- 2) a) Vérifier que : $A(\pi - x) = A(x)$ 0,5pts
 b) En déduire : $A(\frac{5\pi}{6})$; $A(\frac{3\pi}{4})$ et $A(\pi)$ 0,75pts
- 3) Prouver que : $A(\frac{\pi}{2} - x) = \frac{1}{1 + \sin^2 x}$ 0,75pts
- 4) On suppose que $x \neq \frac{\pi}{2}$, Montrer alors que : $A(x) = \frac{1 + \tan^2 x}{2 + \tan^2 x}$ 0,75pts
- 5) Détermine les valeurs de x tels que $A(x) = \frac{4}{5}$ 0,5pts

Exercice 2

Maths-inter.ma

4pts

- 1) Calculer : $A = \cos \frac{\pi}{10} + \cos \frac{5\pi}{10} + \cos \frac{15\pi}{10} + \cos \frac{11\pi}{10}$ 1pts
- 2) Calculer : $B = \cos^2 \frac{\pi}{14} + \cos^2 \frac{3\pi}{7} + \cos^2 \frac{4\pi}{7} + \cos^2 \frac{13\pi}{14}$ 1pts
- 3) Calculer : $C = \sin \frac{\pi}{16} + \sin \frac{7\pi}{16} + \sin \frac{23\pi}{16} + \sin \frac{17\pi}{16}$ 1pts
- 4) Calculer : $B = \sin^2 \frac{\pi}{18} + \cos^2 \frac{3\pi}{4} + \sin^2 \frac{4\pi}{9} + \sin \frac{5\pi}{6} + \sin^2 \frac{5\pi}{9} + \tan \frac{\pi}{3} + \sin^2 \frac{17\pi}{18}$ 1pts

Bonne Chance

