

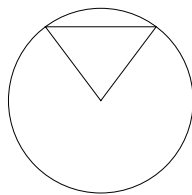
Énoncés des exercices « a2- Trigonométrie »

www.deleze.name/marcel/sec2/ex-corriges/a2/a2-trigo.pdf

a2- Trigonométrie - Corrigés

Corrigé de la question 1

$$\sin(x) = \frac{4}{5}$$



$$\cos(x) = -\sqrt{1 - \sin^2(x)} = -\frac{3}{5}$$

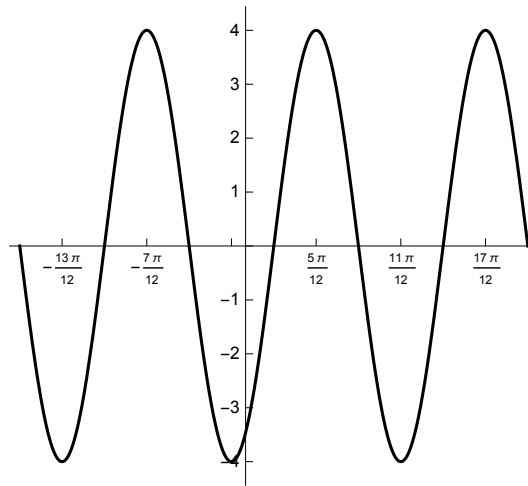
$$\cos(3\pi - x) = -\cos(-x) = -\cos(x) = +\frac{3}{5}$$

Corrigé de la question 2

Dressons un tableau de valeurs sur une période (remplir d'abord les lignes 2, 3, 4, puis enfin la ligne 1) :

x	$-\frac{\pi}{3}$	$-\frac{\pi}{12}$	$\frac{\pi}{6}$	$\frac{5\pi}{12}$	$\frac{2\pi}{3}$
$2x - \frac{\pi}{3}$	$-\pi$	$-\frac{\pi}{2}$	0	$\frac{\pi}{2}$	π
$\sin(2x - \frac{\pi}{3})$	0	-1	0	1	0
$f(x)$	0	-4	0	4	0

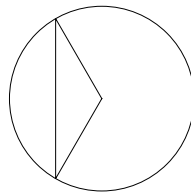
$$T = \frac{2\pi}{3} - \left(-\frac{\pi}{3}\right) = \pi$$



Deux maximums successifs : $\left(-\frac{7\pi}{12}, 4\right), \left(\frac{5\pi}{12}, 4\right)$.

Corrigé de la question 3

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



$$\pi x - \frac{2\pi}{3} = \frac{2\pi}{3} + k2\pi \quad \text{ou} \quad \pi x - \frac{2\pi}{3} = -\frac{2\pi}{3} + k2\pi, \quad k \in \mathbb{Z}$$

$$\pi x = \frac{4\pi}{3} + k2\pi \quad \text{ou} \quad \pi x = k2\pi, \quad k \in \mathbb{Z}$$

$$x = \frac{4}{3} + k2 \quad \text{ou} \quad x = k2, \quad k \in \mathbb{Z}$$

Corrigé de la question 4

$$\tan(x) - \frac{1}{\tan(x)} = -1$$

$$\tan(x) + 1 - \frac{1}{\tan(x)} = 0$$

$$\frac{\tan^2(x) + \tan(x) - 1}{\tan(x)} = 0$$

$$t = \tan(x) \quad \text{et} \quad t^2 + t - 1 = 0 \quad \text{et} \quad t \neq 0$$

$$t = \tan(x) \quad \text{et} \quad t = \frac{-1 \pm \sqrt{5}}{2}$$

$$\tan(x) = \frac{-1 - \sqrt{5}}{2} \quad \text{ou} \quad \tan(x) = \frac{-1 + \sqrt{5}}{2}$$

$$x = \arctan\left(\frac{-1 - \sqrt{5}}{2}\right) + k\pi \quad \text{ou} \quad x = \arctan\left(\frac{-1 + \sqrt{5}}{2}\right) + k\pi, \quad k \in \mathbb{Z}$$

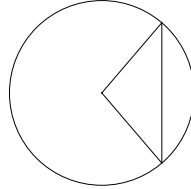
$$x \simeq -1.01722 + k\pi \quad \text{ou} \quad x \simeq 0.553574 + k\pi, \quad k \in \mathbb{Z}$$

Corrigé de la question 5

$$\cos\left(x - \frac{\pi}{4}\right) + \sin(2x) = 0$$

$$\cos\left(x - \frac{\pi}{4}\right) = \sin(-2x) \quad \text{où} \quad \sin(\beta) = \cos\left(\frac{\pi}{2} - \beta\right)$$

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



$$x - \frac{\pi}{4} = \frac{\pi}{2} + 2x + k2\pi \quad \text{ou} \quad x - \frac{\pi}{4} = -\frac{\pi}{2} - 2x + k2\pi, \quad k \in \mathbb{Z}$$

$$-x = \frac{3\pi}{4} + k2\pi \quad \text{ou} \quad 3x = -\frac{\pi}{4} + k2\pi, \quad k \in \mathbb{Z}$$

$$x = -\frac{3\pi}{4} - k2\pi \quad \text{ou} \quad x = -\frac{\pi}{12} + k\frac{2\pi}{3}, \quad k \in \mathbb{Z}$$

Lien vers la page mère : [Exercices avec corrigés sur www.deleze.name](http://www.deleze.name)

www.deleze.name/marcel/sec2/ex-corriges/index.html

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