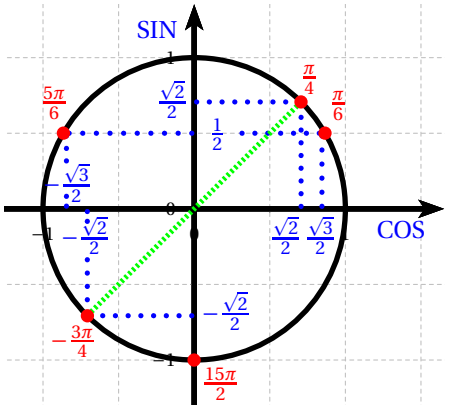
Corrigé du devoir surveillé n°5

Version 1

1.



Par lecture du cercle trigonométrique :

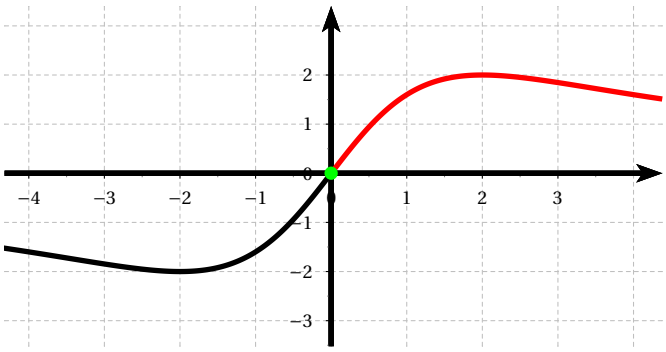
$\cos\frac{\pi}{6}=\frac{\sqrt{3}}{2}$	$\cos\frac{5\pi}{6}=-\frac{\sqrt{3}}{2}$	$\cos\frac{\pi}{4}=\frac{\sqrt{2}}{2}$	$\cos\left(-\frac{3\pi}{4}\right)=-\frac{\sqrt{2}}{2}$	$\cos\frac{15\pi}{2}=0$
$\sin\frac{\pi}{6}=\frac{1}{2}$	$\sin\frac{5\pi}{6}=\frac{1}{2}$	$\sin\frac{\pi}{4}=\frac{\sqrt{2}}{2}$	$\sin\left(-\frac{3\pi}{4}\right)=-\frac{\sqrt{2}}{2}$	$\sin\frac{15\pi}{2}=-1$

2. (a) Pour tout $x\in\mathbb{R}$:

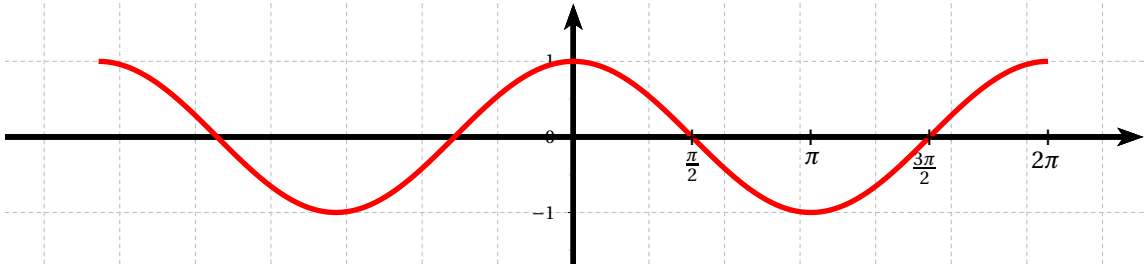
$$f(-x)=\frac{5\times(-x)}{(-x)^2+3}=\frac{-5x}{x^2+3}=-f(x),$$

donc f est impaire.

(b)

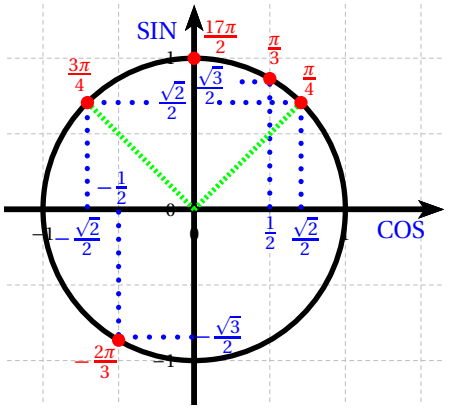


3.



Version 2

1.



Par lecture du cercle trigonométrique :

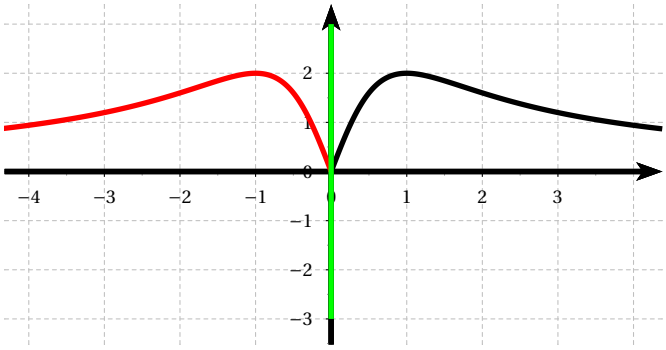
$\cos\frac{\pi}{3}=\frac{1}{2}$	$\cos\left(-\frac{2\pi}{3}\right)=-\frac{1}{2}$	$\cos\frac{\pi}{4}=\frac{\sqrt{2}}{2}$	$\cos\frac{3\pi}{4}=-\frac{\sqrt{2}}{2}$	$\cos\frac{17\pi}{2}=0$
$\sin\frac{\pi}{3}=\frac{\sqrt{3}}{2}$	$\sin\left(-\frac{2\pi}{3}\right)=-\frac{\sqrt{3}}{2}$	$\sin\frac{\pi}{4}=\frac{\sqrt{2}}{2}$	$\sin\frac{3\pi}{4}=\frac{\sqrt{2}}{2}$	$\sin\frac{17\pi}{2}=1$

2. (a) Pour tout $x\in\mathbb{R}$:

$$f(-x)=\frac{4\times|(-x)|}{(-x)^2+4}=\frac{4|x|}{x^2+1}=f(x),$$

donc f est paire.

(b)



3.