# Corrections Savoir Ft.1

## Corrigé Exercice 1

a) $f(\pi) = \frac{2}{\pi}\cos\pi = \frac{2}{\pi} \times (-1) = -\mathbf{\frac{2}{\pi}}$ $\qquad f\left(\frac{\pi}{2}x\right) = \frac{2}{\frac{\pi}{2}}\cos\frac{\pi}{2} = 2 \times \frac{2}{\pi} \times 0 = \mathbf{0}$

b) $g\left(\frac{\pi}{4}\right) = 1 - \cos\left(\frac{2\pi}{4}\right) = 1 - \cos\left(\frac{\pi}{2}\right) = 1 - 0 = \mathbf{1}$

c) $h\left(\frac{\pi}{2}\right) = \cos\frac{\pi}{2}\sin\frac{\pi}{2} = 0 \times 1 = \mathbf{0}$ $\qquad h\left(\frac{\pi}{6}\right) = \cos\frac{\pi}{6}\sin\frac{\pi}{6} = \frac{\sqrt{3}}{2} \times \frac{1}{2} = \mathbf{\frac{\sqrt{3}}{4}}$

d) $j(0) = 2e^0(\cos(0) + 1) = 2 \times (1 + 1) \times 1 = \mathbf{4}$ ; $j(1) = 2e^1(\cos(\pi) + 1) = 2e \times (-1 + 1) = \mathbf{0}$

## Corrigé Exercice 2

**1)**

| $\boldsymbol{x}$ | $-\frac{\pi}{2}$ | | $0$ | | $\frac{\pi}{2}$ |
|---|---|---|---|---|---|
| $\boldsymbol{\sin x}$ | | $-$ | $\mathbf{0}$ | $+$ | |

| $\boldsymbol{x}$ | $-\frac{\pi}{2}$ | | $\frac{\pi}{2}$ |
|---|---|---|---|
| $\boldsymbol{\cos x}$ | $\mathbf{0}$ | $+$ | $\mathbf{0}$ |

**2) a)**

| $\boldsymbol{x}$ | $-\pi$ | | $-\frac{\pi}{2}$ | | $0$ |
|---|---|---|---|---|---|
| $\boldsymbol{\cos x}$ | | $-$ | $\mathbf{0}$ | $+$ | |

**b)**

| $\boldsymbol{x}$ | $\pi$ | | $2\pi$ |
|---|---|---|---|
| $\boldsymbol{\sin x}$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ |

**3) a)**

| $\boldsymbol{x}$ | $-\pi$ | | $0$ | | $\pi$ |
|---|---|---|---|---|---|
| $-\frac{1}{2}x$ | $\vert$ | $+$ | $0$ | $-$ | $\vert$ |
| $\sin x$ | $0$ | $-$ | $0$ | $+$ | $0$ |
| $\boldsymbol{f(x)}$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ |

**b)**

| $\boldsymbol{x}$ | $0$ | | $\frac{\pi}{2}$ | | $\frac{3\pi}{2}$ | | $2\pi$ |
|---|---|---|---|---|---|---|---|
| $2x - \pi$ | $\vert$ | $-$ | $0$ | $+$ | $\vert$ | $+$ | $\vert$ |
| $\cos x$ | $\vert$ | $+$ | $0$ | $-$ | $0$ | $+$ | $\vert$ |
| $\boldsymbol{g(x)}$ | | $-$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ | $+$ | |

**c)**

| $\boldsymbol{x}$ | $-\frac{\pi}{2}$ | | $0$ | | $\frac{\pi}{2}$ | | $\pi$ |
|---|---|---|---|---|---|---|---|
| $\cos x$ | $0$ | $+$ | $\vert$ | $+$ | $0$ | $-$ | $\vert$ |
| $\sin x$ | $\vert$ | $-$ | $0$ | $+$ | $\vert$ | $+$ | $0$ |
| $\boldsymbol{h(x)}$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ | $+$ | $\mathbf{0}$ | $-$ | $\mathbf{0}$ |