

n°1 p164

$$\begin{aligned} a) \quad a(x) &= 2 \sin(x) \\ b) \quad b(x) &= -\sin(2x) \\ c) \quad c(x) &= 2 \sin(2x) - 2 \\ d) \quad d(x) &= -\frac{1}{2} \sin(2x) \end{aligned}$$

$$\begin{aligned} a'(x) &= 2 \cos(x) = h(x) \\ b'(x) &= -2 \cos(2x) = i(x) \\ c'(x) &= 4 \cos(2x) = f(x) \\ d'(x) &= -\cos(x) = g(x) \end{aligned}$$

n°4 p164

$$1) \quad f(x) = x^2 - \cos(x)$$

$$f'(x) = 2x + \sin(x)$$

$$2) \quad f(x) = x - \sin(2x)$$

$$f'(x) = 1 - 2 \cos(2x)$$

$$3) \quad f(x) = 3 \sin(x) - \cos(3x) + 3$$

$$f'(x) = 3 \cos(x) + 3 \sin(3x)$$

$$4) \quad f(x) = \sin^2(x)$$

$$f'(x) = 2 \sin(x) \cos(x)$$

$$5) \quad f(x) = \cos^2(x)$$

$$f'(x) = -2 \cos(x) \sin(x)$$

$$6) \quad f(x) = x^2 \sin(x)$$

$$f'(x) = 2x \sin(x) + x^2 \cos(x)$$

n°5 p164

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

$$(\cos(u))' = -u' \sin(u)$$

$$f'(x) = -2 \sin\left(2x - \frac{\pi}{2}\right)$$

$$2) \quad f(x) = 5x \cdot \frac{1}{\cos(x)}$$

$$\left(\frac{1}{u}\right)' = -\frac{u'}{u^2}$$

$$f'(x) = 5x \cdot \frac{\sin(x)}{\cos^2(x)}$$

$$3) \quad f(x) = \sin\left(\frac{\pi}{4} - x\right)$$

$$(\sin(u))' = u' \cos(u)$$

$$f'(x) = -\cos\left(\frac{\pi}{4} - x\right)$$

$$4) \quad f(x) = \cos(4x) \sin(-4x)$$

$$\text{Soit } u(x) = \cos(4x) \\ u'(x) = -4 \sin(4x)$$

$$v(x) = \sin(-4x) \\ v'(x) = -4 \cos(-4x)$$

$$f'(x) = -4 \sin(4x) \times \sin(-4x) + \cos(4x) \times -4 \cos(-4x)$$

$$f'(x) = 4 \sin(4x) \times \sin(4x) - 4 \cos(4x) \times \cos(4x)$$

$$f'(x) = 4 (\sin^2(4x) - \cos^2(4x))$$