
Exercices de dérivation

■ Dériver les fonctions suivantes

$$1) f(x) = -2x^2 + 2x + 3\sqrt{x} - 1 - \frac{1}{x^4}$$

$$2) f(x) = \sqrt[3]{x^4 - 2x + 3}$$

$$3) f(x) = \frac{(2x+4)^2}{5x+5}$$

$$4) f(x) = \sin^3(x) \tan^2(x)$$

$$5) f(x) = \frac{5-2x}{4x+5}$$

$$6) f(x) = \left(5x - \frac{5}{x}\right) \left(5x + \frac{2}{x}\right)$$

$$7) f(x) = \frac{\sqrt[3]{x} + 1}{5x+3}$$

$$8) f(x) = -\frac{5}{4-3x}$$

$$9) f(x) = \frac{3 \cos(x)}{\sin(x) + 2}$$

$$10) f(x) = \frac{5x-3}{\sqrt{3x-5}}$$

■ Solutions :

$$1) f'(x) = -4x + 2 + \frac{3}{2\sqrt{x}} + \frac{4}{x^5}$$

$$2) f'(x) = \frac{2(2x^3 - 1)}{3(x^4 - 2x + 3)^{2/3}}$$

$$3) f'(x) = \frac{15x - 41}{2(3x - 5)^{3/2}}$$

$$4) f'(x) = 3 \tan(x) \sin^3(x) + 2 \tan^3(x) \sin(x)$$

$$5) f'(x) = -\frac{30}{(4x + 5)^2}$$

$$6) f'(x) = 50x + \frac{20}{x^3}$$

$$7) f'(x) = \frac{-10x - 15x^{2/3} + 3}{3x^{2/3}(5x + 3)^2}$$

$$8) f'(x) = -\frac{15}{(4 - 3x)^2}$$

$$9) f'(x) = -\frac{3(2\sin(x) + 1)}{(\sin(x) + 2)^2}$$

$$10) f'(x) = \frac{15x - 41}{2(3x - 5)^{3/2}}$$