

Nom :

DERIVATION – 1 : Dérivée d'un produit, d'un inverse, d'un quotient (exercices pages 104 – 105) ;

Formules :

$$(uv)' = u'v + v'u$$

$$(u^2)' = 2u'u$$

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

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

| n° | fonction : f(x) = | u(x) = | u'(x) = | v(x) = | v'(x) = | dérivée brute : f'(x) = | dérivée simplifiée : f'(x) = |
|----|---------------------------------------|-----------------|----------|-----------------|----------|---|---|
| 21 | $(-3x + 4)(-x + 3)$ | $-3x + 4$ | -3 | $-x + 3$ | -1 | $-3(-x + 3) + (-1)(-3x + 4)$ | $6x - 13$ |
| 23 | $(-4x + 1)^2$ | $-4x + 1$ | -4 | | | $2(-4)(-4x + 1)$ | $32x - 8$ |
| 26 | $\frac{1}{x^2}$ | | | x^2 | $2x$ | $\frac{-2x}{x^4}$ | $\frac{-2}{x^3}$ |
| 29 | $\frac{3}{2x - 1}$ | | | $2x - 1$ | 2 | $3 \times \frac{-2}{2x - 1}$ | $\frac{-6}{2x - 1}$ |
| 30 | $2x + 3 - \frac{3}{2x - 1}$ | | | | | $2 - \frac{-6}{2x - 1}$ | $\frac{4x + 4}{2x - 1}$ |
| 39 | $\frac{2x}{4x + 3}$ | $2x$ | 2 | $4x + 3$ | 4 | $\frac{2(4x + 3) - 4(2x)}{(4x + 3)^2}$ | $\frac{6}{(4x + 3)^2}$ |
| 33 | $\frac{4x + 3}{2x - 1}$ | $4x + 3$ | 4 | $2x - 1$ | 2 | $\frac{4(2x - 1) - 2(4x + 3)}{(2x - 1)^2}$ | $\frac{-10}{(2x - 1)^2}$ |
| 46 | $\frac{2x - 3}{x + 4}$ | $2x - 3$ | 2 | $x + 4$ | 1 | $\frac{2(x + 4) - 1(2x - 3)}{(x + 4)^2}$ | $\frac{11}{(x + 4)^2}$ |
| 47 | $\frac{-x}{x + 2}$ | $-x$ | -1 | $x + 2$ | 1 | $\frac{-1(x + 2) - 1(-x)}{(x + 2)^2}$ | $\frac{-2}{(x + 2)^2}$ |
| 48 | $\frac{-x}{x^2 + 3}$ | $-x$ | -1 | $x^2 + 3$ | $2x$ | $\frac{-1(x^2 + 3) - 2x(-x)}{(x^2 + 3)^2}$ | $\frac{x^2 - 3}{(x^2 + 3)^2}$ |
| 35 | $\frac{3x^2 - 1}{x^2 - x - 2}$ | $3x^2 - 1$ | $6x$ | $x^2 - x - 2$ | $2x - 1$ | $\frac{6x(x^2 - x - 2) - (2x - 1)(3x^2 - 1)}{(x^2 - x - 2)^2}$ | $-\frac{3x^2 + 10x + 1}{(x^2 - x - 2)^2}$ |
| 36 | $\frac{2x^2 - 2x + 1}{3x^2 - 4x + 1}$ | $2x^2 - 2x + 1$ | $4x - 2$ | $3x^2 - 4x + 1$ | $6x - 4$ | $\frac{(4x - 2)(3x^2 - 4x + 1) - (6x - 4)(2x^2 - 2x + 1)}{(3x^2 - 4x + 1)^2}$ | $\frac{-2x^2 - 18x + 2}{(3x^2 - 4x + 1)^2}$ |