

## Dérivation

### 1) Dérivée de $u^n : n u^{n-1} u'$ :

1	$f(x) = (2x^2 - x + 1)^3$	2	$f(x) = (x^2 - 2x + 3)^8$	3	$f(x) = (-6x^2 + x - 1)^4$
4	$f(x) = -\frac{1}{4}(-3x^2 - 6x + 1)^8$	5	$f(x) = (x^3 - 1)^{11}$	6	$f(x) = -\frac{2}{3}\left(\frac{1}{4}x^2 - \frac{3}{x} - 7\right)^6$
7	$f(x) = (1 - 2x)^6$	8	$f(x) = \left(\frac{1}{3}x - 8\right)^6$	9	$f(x) = -3(5x - 7)^{12}$
10	$f(x) = (\sqrt{x} + 1)^3$	11	$f(x) = (-5x + 4)^2$	12	$f(x) = (3x + 2)^2$
13	$f(x) = -3\left(\frac{1}{4}x^2 - \frac{1}{3}x + 1\right)^{12}$	14	$f(x) = \left(3x - \frac{5}{4}x^2\right)^6$	15	$f(x) = \left(3x + \frac{1}{x}\right)^3$
16	$f(x) = \sin^3 x$	17	$f(x) = \cos^4 x$	18	$f(x) = (\cos x)^6$

### 2) Dérivée de $\frac{1}{u^n} : -n \times \frac{u'}{u^{n+1}}$ :

1	$f(x) = \frac{1}{(2x - 4)^5}$	2	$f(x) = \frac{1}{(x^2 + 2)^4}$	3	$f(x) = \frac{-3}{10(-x^2 + 4x)^5}$
4	$f(x) = \frac{2}{7(-2x^2 + 4x + 1)^{14}}$	5	$f(x) = \frac{1}{3(x + 5)^6}$	6	$f(x) = \frac{-6}{(\sqrt{x} + 4)^3}$

### 3) Dérivée de $\sqrt{u} : \frac{u'}{2\sqrt{u}}$ :

1	$f(x) = 4\sqrt{7x + 5}$	2	$f(x) = \sqrt{-(2x + 3)}$	3	$f(x) = \sqrt{x^2 - x^4}$
4	$f(x) = \sqrt{x^2 + 5x + 7}$	5	$f(x) = \sqrt{4x - \frac{2}{x}}$	6	$f(x) = \frac{1}{\sqrt{2x + 1}}$

### 4) Dérivée de $x \mapsto u(ax + b)$

1	$f(x) = \sin(3x - 2)$	2	$f(x) = \cos\left(\frac{\pi}{4} - 6x\right)$	3	$f(x) = \cos(\sqrt{3}x - \sqrt{2})$
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### 5) Divers

1	$f(x) = (2x - 1)^4(1 - 3x^2)^3$	2	$f(x) = x\sqrt{x + 1}$	3	$f(x) = \frac{x^3}{\sqrt{1 - x}}$
4	$f(x) = \left(\frac{4x - 3}{5x - 2}\right)^2$	5	$f(x) = \left(\frac{3x - 4}{x - 1}\right)^4$	6	$f(x) = \sqrt{\frac{x - 1}{x + 3}}$
7	$f(x) = \frac{(x^2 + 2)^2}{\sqrt{x^2 + 1}}$	8	$f(x) = \frac{x^2}{\sqrt{x^2 - 1}}$	9	$f(x) = (\cos x \sin x)^3$