Calculer la dérivée des polynômes

1) $f(x) = x$

2) $f(t) = 2t+1$ par rapport à t

3) $f(x) = -x-1$

4) $f(x) = 1-2x$

5) $f(x) = a \cdot x + b$ par rapport à x

6) $f(x) = x^2$

7) $f(x) = 2x^2+1$

8) $f(x) = 3x^2 - 4x + 3$

9) $f(x) = 1 - x - x^2$

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

11) $f(x) = 5x^2 + 4x - 3$

12) $f(x) = 2x^2 + 6x + c$ par rapport à x

13) $f(x) = x^3 - x^2 + x - 1$

14) $f(x) = 3x^3 + 2x^2 - 5x + 3$

15) $f(x) = 1 + 2x - 4x^2 + 8x^3$

16) $f(x) = x^4$ $\quad f'(x) = 4x^3$

17) $f(x) = x^n$ $\quad f'(x) = n \cdot x^{(n-1)}$

18) $f(x) = x^8 - x^4 + x^2 + 1$ $\quad f'(x) = 8x^7 - 4x^3 + 2x$

19) $f(x) = 3x^4 + 4x^3 + 3x^2 + 2x - 1$

$f'(x) = 12x^3 + 12x^2 + 6x + 2$

20) $f(x) = x^5 - 1 + x^3 - 1 + x$

$f'(x) = 5x^4 + 3x^2 + 1$

1) $f'(x) = (x)' = 1$

2) $f'(t) = (2t)' + (1)' = 2 + 0 = 2$

3) $f'(x) = -(x)' - (1)' = -1 - 0 = -1$

4) $f'(x) = (1)' - 2\cdot(x)' = 0 - 2 = -2$

5) $f'(x) = a\cdot(x)' + (b)' = a\cdot 1 + 0 = a$

$(ax+b)' = (ax)' + (b)' = a(x)' + b(1)'$

6) $f'(x) = 2x$

7) $f'(x) = 2\cdot(x^2)' + (1)' = 2\cdot 2x + 0 = 4x$

8) $f'(x) = 3(x^2)' - 4(x)' + (3)' = 3\cdot 2x - 4\cdot 1 + 0$

$= 6x - 4$

9) $f'(x) = (1)' - (x)' - (x^2)' = 0 - 1 - 2x = -1 - 2x$

10) $f'(x) = \frac{1}{2}(x^2)' + \frac{1}{3}(x)' - \left(\frac{1}{4}\right)' = \frac{1}{2}\cdot 2x + \frac{1}{3}\cdot 1 - 0$

$= x + \frac{1}{3}$

11) $(5x^2+4x-3)' = 5\cdot(x^2)' + 4(x)' - 0 = 5\cdot 2x + 4 = 10x+4$

12) $(ax^2+bx+c)' = a(x^2)' + b(x)' + c\cdot(1)' = a\cdot 2x + b = 2ax+b$

13) $(x^3-x^2+x-1)' = 3x^2-2x+1-0 = 3x^2-2x+1$

14) $(3x^3+2x^2-5x+3)' = 3\cdot(3x^2) + 2\cdot(2x) - 5 = 9x^2+4x-5$

15) $(1+2x-4x^2+8x^3)' = 0+2-4\cdot(2x) + 8(3x^2) = 2-8x+24x^2$