

Fonctions Exponentielles

1. $f(x) = e^x$

$$f'(x) = e^x$$

$$F(x) = e^x + C$$

2. $f(x) = 2e^{2x}$

$$f'(x) = 4e^{2x}$$

$$F(x) = e^{2x} + C$$

3. $f(x) = 3e^{-3x}$

$$f'(x) = -9e^{-3x}$$

$$F(x) = -e^{-3x} + C$$

4. $f(x) = e^{4x}$

$$f'(x) = 4e^{4x}$$

$$F(x) = \frac{1}{4}e^{4x} + C$$

5. $f(x) = e^{-x^2}$

$$f'(x) = -2xe^{-x^2}$$

$$F(x) = \text{difficile}$$

6. $f(x) = 3xe^{5x}$

$$f'(x) = \text{difficile, appliquer } u \times v$$

$$F(x) = \frac{3}{5}e^{5x} + C$$

7. $f(x) = e^{2x+3}$

$$f'(x) = 2e^{2x+3}$$

$$F(x) = \frac{1}{2}e^{2x+3} + C$$

Fonctions Polynomiales

1. $f(x) = x^2 + 3x + 2$

$$f'(x) = 2x + 3$$

$$F(x) = \frac{1}{3}x^3 + \frac{3}{2}x^2 + 2x + C$$

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

$$f'(x) = 12x^2 - 4x + 5$$

$$F(x) = x^4 - \frac{2}{3}x^3 + \frac{5}{2}x^2 - x + C$$

3. $f(x) = 3x^4 + 2x^3 - 5x^2 + 7x - 4$

$$f'(x) = 12x^3 + 6x^2 - 10x + 7$$

$$F(x) = \frac{3}{5}x^5 + \frac{1}{2}x^4 - \frac{5}{3}x^3 + \frac{7}{2}x^2 - 4x + C$$

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

$$f'(x) = 5x^4 - 8x^3 + 12x^2 - 2x + 3$$

$$F(x) = \frac{1}{6}x^6 - \frac{2}{5}x^5 + x^4 - \frac{1}{3}x^3 + \frac{3}{2}x^2 - 2x + C$$

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

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

$$F(x) = \frac{1}{2}x^4 + \frac{1}{3}x^3 - \frac{3}{2}x^2 + 5x + C$$

6. $f(x) = 4x^4 - 3x^3 + 2x^2 - 5x + 1$

$$f'(x) = 16x^3 - 9x^2 + 4x - 5$$

$$F(x) = \frac{4}{5}x^5 - \frac{3}{4}x^4 + \frac{2}{3}x^3 - \frac{5}{2}x^2 + x + C$$

Fonctions avec cos et sin

1. $f(x) = \sin(x)$

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

$$F(x) = -\cos(x) + C$$

2. $f(x) = 2 \cos(2x)$

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

$$F(x) = \sin(2x) + C$$

3. $f(x) = \sin(3x)$

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

$$F(x) = \cos(3x) + C$$

4. $f(x) = \frac{1}{2} \cos(4x)$

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

$$F(x) = \frac{1}{8} \sin(4x) + C$$