

$$19 - f(x) = \frac{e^{-2x} + 1}{e^{-2x} + 1}$$

$$f'(x) = \frac{e^{-2} \cdot (-2)}{e^{-2} + 1}$$

$$= \frac{-2}{e^{-2} + 1}$$



$$20 - f(x) = x e^{5x}$$

$$f'(x) = 5x \times 5e^{5x} + e^{5x}$$

$$= 5x \times 5e^{5x} + e^{5x}$$

21 -

$$f(x) = (3x - 2)^2$$

$$f'(x) = 6x - 4$$

Ici, il s'agit d'une erreur de signe, car la dérivée de la

radicale est négative, or tu as omis ce fait.

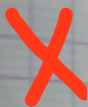
$$22 - f(x) = x^2 \sqrt{x}$$

$$f'(x) = 2x \times \sqrt{x} + x^2 \times \frac{1}{2\sqrt{x}}$$

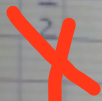
$$23 - f(x) = (3x - 2)^2$$

$$f'(x) = 18x - 12$$

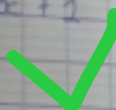
13.  $f(x) = \sin(x^2)$   
 $f'(x) = \cos(x^2)$   
 $= \cos(2x)$



14.  $f(x) = \frac{1}{3}x^3 + \frac{1}{2}x^2 + x$   
 $f'(x) = 2x + 1$



15.  $f(x) = 12x^2 + 6x + 1$   
 $f'(x) = 24x - 6$



16.  $f(x) = e^{3x}$   
 $f'(x) = 3e \times x^2$



$$17 - f(x) = 5x^2 + x - 7e^{0x}$$

$$f'(x) = 10x + 1 - 7e^{0x}$$

$$18 - f(x) = \frac{3e^x - 4}{e^x - 1}$$

Qu'est ce qui est écrit

$$f'(x) = \frac{4e^x - 4}{1e^x + 2} + \frac{4(1e^{0x} + 1) - (1e^x - 1)}{(1e^x + 1)^2}$$

$$f'(x) = \frac{4e^x + 4(16e^x - 16)}{(1e^x + 1)^2}$$

$$9 - f(x) = (\sin x)^2$$

$$f'(x) = 2 \sin x \times \cos(x) \\ = 2 \sin(x) \cos(x)$$

$$10 - f(x) = 4 \sin(x) + \cos(2x)$$

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

11.  $f(x) = \left( \frac{4x-1}{x+2} \right)^3$

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

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

$$= \frac{7}{x+2^2}$$

12.  $f(x) = \cos(-2x+5)$

$$f'(x) = -\sin(-2x+5)$$

$$= -\sin(-2)$$

$$6(x) = \frac{5x}{2\sqrt{x}}$$

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

$$f'(x) = 6x + 1$$

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

$$5. f(x) = \frac{x}{x^2+8} \quad \left| \quad 6. \frac{x+5}{x-1} \right.$$

$$f'(x) = \frac{1}{x^2+8}$$

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

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

$$= -2x - (1x + 5x)$$

$$7. f(x) = \frac{\sqrt{2}x+4}{x-3}$$

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

8.

$$f(x) = 2x^6 - 3x^{44}$$

$$f'(x) = 2 \times 6x^5 - 3 \times 44x^{43}$$

$$= 12x^5 - 132x^{43}$$

$$= 0$$



Kleruy Serge  
Souffrant  
Terminale F

### Dérivées

calculer des dérivées des 23 fonctions

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

$f'(x) = 2 \times 2x + 0$

$f'(x) = 4x$

2-  $f(x) = -3\sqrt{x}$

$u(x) = -3$  et  $v(x) = \sqrt{x}$

$u'(x) = -3$  et  $v'(x) = \frac{1}{2\sqrt{x}}$

$f(x) = \frac{3}{2}\sqrt{x}$

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

$u(x) = x$

$u'(x) = 1$

$v(x) = \sqrt{x}$

$v'(x) = \frac{1}{2\sqrt{x}}$

La fonction radicale a une dérivée négative !

$f'(x) = 1 \times \sqrt{x} + x \times \frac{1}{2\sqrt{x}}$

