Astuce

Apprendre les formules de dérivées PAR COEUR

Calculer les dérivées

1. $f(x) = x^2 - 4x + 1$
2. $f(x) = 3x^3 - 5x^2 + 2x$
3. $f(x) = \dfrac{1}{x}$
4. $f(x) = \sqrt{x}$
5. $f(x) = (x^2 + 1)(x - 3)$
6. $f(x) = \dfrac{x^2 + 1}{x}$
7. $f(x) = 2x^3 - x + 4$
8. $f(x) = \sqrt{x^2 + 1}$
9. $f(x) = (2x + 1)(x^2)$
10. $f(x) = \dfrac{1}{x^2}$
11. $f(x) = x\sqrt{x}$
12. $f(x) = \dfrac{x + 1}{x - 1}$
13. $f(x) = x^4 - 3x^2 + 1$
14. $f(x) = (x^2 + 2x)(x - 1)$
15. $f(x) = \dfrac{2x}{x^2 + 1}$
16. $f(x) = \sqrt{2x + 1}$
17. $f(x) = x^2\sqrt{x}$
18. $f(x) = \dfrac{x^2 - 1}{x}$
19. $f(x) = (x + 1)(x + 2)(x)$
20. $f(x) = \dfrac{1}{\sqrt{x}}$

Corrigé

Exercice 1

On considère $f(x) = x^2 - 4x + 1$.

On dérive terme à terme :

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

Exercice 2

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

$$f'(x) = 9x^2 - 10x + 2$$

Exercice 3

On considère $f(x) = \dfrac{1}{x}$.

On écrit $f(x) = x^{-1}$.

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

Réponses des exercices suivants

4. $\dfrac{1}{2\sqrt{x}}$
5. $2x(x-3) + (x^2+1)$
6. $\dfrac{2x \cdot x - (x^2+1)}{x^2} = \dfrac{x^2-1}{x^2}$
7. $6x^2 - 1$
8. $\dfrac{x}{\sqrt{x^2+1}}$
9. $2x(2x+1) + x^2 \cdot 2$
10. $-\dfrac{2}{x^3}$
11. $\dfrac{3}{2}\sqrt{x}$

12. $\dfrac{(x-1)-(x+1)}{(x-1)^2} = \dfrac{-2}{(x-1)^2}$
13. $4x^3 - 6x$
14. $(2x+2)(x-1) + (x^2+2x)$
15. $\dfrac{2(x^2+1) - 2x(2x)}{(x^2+1)^2} = \dfrac{2-2x^2}{(x^2+1)^2}$
16. $\dfrac{1}{\sqrt{2x+1}}$
17. $\frac{5}{2}x^{3/2}$
18. $\dfrac{2x \cdot x - (x^2-1)}{x^2} = \dfrac{x^2+1}{x^2}$
19. $(x+2)x + (x+1)x + (x+1)(x+2)$
20. $-\dfrac{1}{2x^{3/2}}$