

RAPPEL : dérivées des fonctions usuelles

fonction :	$f(x) = k$ (constante)	$f(x) = ax + b$	$f(x) = x^n$	$f(x) = \frac{1}{x^n}$	$f(x) = \sqrt{x}$
fonction dérivée :	$f'(x) = 0$	$f'(x) = a$	$f'(x) = nx^{n-1}$	$f'(x) = \frac{-n}{x^{n+1}}$	$f'(x) = \frac{1}{2\sqrt{x}}$

EXERCICE 1A.1 Déterminer la dérivée de la fonction f .

1. $f(x) = 3x + 2$ donc $f'(x) = 3$

2. $f(x) = x^5$

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

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

5. $f(x) = \frac{1}{x^2}$

6. $f(x) = 3$

7. $f(x) = x$

8. $f(x) = -x + 5$

9. $f(x) = 5x - 5$

10. $f(x) = x^4$

11. $f(x) = \frac{1}{x^7}$

12. $f(x) = -x$

13. $f(x) = 8 + x$

14. $f(x) = x^7$

15. $f(x) = 0$

16. $f(x) = 3 - 12x$

17. $f(x) = \frac{1}{x^3}$

18. $f(x) = \frac{1}{x}$

19. $f(x) = \frac{1}{x^5}$

20. $f(x) = \sqrt{x}$

21. $f(x) = \frac{1}{x^{11}}$

22. $f'(x) = -7$

EXERCICE 1A.2 Déterminer une fonction f dont on connaît la dérivée f' .

1. $f'(x) = 4x^3$ donc $f(x) = x^4$

2. $f'(x) = 7x^6$

3. $f'(x) = 5$

4. $f'(x) = 6x^5$

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

6. $f'(x) = \frac{-5}{x^6}$

7. $f'(x) = \frac{1}{2\sqrt{x}}$

8. $f'(x) = 0$

9. $f'(x) = -5$

10. $f'(x) = 3x^2$

11. $f'(x) = 2x$

12. $f'(x) = 1$

13. $f'(x) = 13x^{12}$

14. $f'(x) = \frac{-9}{x^{10}}$

15. $f'(x) = 8x^7$

16. $f'(x) = 2$

CORRIGE – NOTRE DAME DE LA MERCI – MONTPELLIER

RAPPEL : dérivées des fonctions usuelles

fonction :	$f(x) = k$ (constante)	$f(x) = ax + b$	$f(x) = x^n$	$f(x) = \frac{1}{x^n}$	$f(x) = \sqrt{x}$
fonction dérivée :	$f'(x) = 0$	$f'(x) = a$	$f'(x) = nx^{n-1}$	$f'(x) = \frac{-n}{x^{n+1}}$	$f'(x) = \frac{1}{2\sqrt{x}}$

EXERCICE 1A.1 Déterminer la dérivée de la fonction f .

- | | | | |
|-------------------------------|------------------------------|--------------------------|-------------------------------|
| 1. $f(x) = 3x + 2$ | donc $f'(x) = 3$ | 2. $f(x) = x^5$ | $f'(x) = 5x^4$ |
| 3. $f(x) = -7x + 2$ | $f'(x) = -7$ | 4. $f(x) = -5x + 7$ | $f'(x) = -5$ |
| 5. $f(x) = \frac{1}{x^2}$ | $f'(x) = \frac{-2}{x^3}$ | 6. $f(x) = 3$ | $f'(x) = 0$ |
| 7. $f(x) = x$ | $f'(x) = 1$ | 8. $f(x) = -x + 5$ | $f'(x) = -1$ |
| 9. $f(x) = 5x - 5$ | $f'(x) = 5$ | 10. $f(x) = x^4$ | $f'(x) = 4x^3$ |
| 11. $f(x) = \frac{1}{x^7}$ | $f'(x) = \frac{-7}{x^8}$ | 12. $f(x) = -x$ | $f'(x) = -1$ |
| 13. $f(x) = 8 + x$ | $f'(x) = 1$ | 14. $f(x) = x^7$ | $f'(x) = 7x^6$ |
| 15. $f(x) = 0$ | $f'(x) = 0$ | 16. $f(x) = 3 - 12x$ | $f'(x) = -12$ |
| 17. $f(x) = \frac{1}{x^3}$ | $f'(x) = \frac{-3}{x^4}$ | 18. $f(x) = \frac{1}{x}$ | $f'(x) = \frac{-1}{x^2}$ |
| 19. $f(x) = \frac{1}{x^5}$ | $f'(x) = \frac{-5}{x^6}$ | 20. $f(x) = \sqrt{x}$ | $f'(x) = \frac{1}{2\sqrt{x}}$ |
| 21. $f(x) = \frac{1}{x^{11}}$ | $f'(x) = \frac{-11}{x^{12}}$ | 22. $f'(x) = -7$ | $f'(x) = 0$ |

EXERCICE 1A.2 Déterminer une fonction f dont on connaît la dérivée f' .

- | | | | |
|----------------------------------|-------------------|---------------------------------|------------------------|
| 1. $f'(x) = 4x^3$ | donc $f(x) = x^4$ | 2. $f'(x) = 7x^6$ | $f(x) = x^7$ |
| 3. $f'(x) = 5$ | $f(x) = 5x + 1$ | 4. $f'(x) = 6x^5$ | $f(x) = x^6$ |
| 5. $f'(x) = \cos x$ | $f(x) = \sin x$ | 6. $f'(x) = \frac{-5}{x^6}$ | $f(x) = \frac{1}{x^5}$ |
| 7. $f'(x) = \frac{1}{2\sqrt{x}}$ | $f(x) = \sqrt{x}$ | 8. $f'(x) = 0$ | $f(x) = 4$ |
| 9. $f'(x) = -5$ | $f(x) = -5x$ | 10. $f'(x) = 3x^2$ | $f(x) = x^3$ |
| 11. $f'(x) = 2x$ | $f(x) = x^2$ | 12. $f'(x) = 1$ | $f(x) = x + 2$ |
| 13. $f'(x) = 13x^{12}$ | $f(x) = x^{13}$ | 14. $f'(x) = \frac{-9}{x^{10}}$ | $f(x) = \frac{1}{x^9}$ |
| 15. $f'(x) = 8x^7$ | $f(x) = x^8$ | 16. $f'(x) = 2$ | $f(x) = 2x + 5$ |