

Exos Dérivées

A) 1. 0
 2. 5
 3. 3
 4. $2x$
 5. $6x^2$
 6. $6x$
 7. $6x+5$
 8. $6x^2+5$
 9. $6x+5$
 10. $6x^2+6x+5$

11. $\cos x$
 12. $3 \cos x$
 13. $\log x - 2 \sin x$
 14. $3 \cos x + 5 \sin x$
 15. $\frac{1}{\cos^2 x}$ ou $1 + \lg^2 x$

16. $-6x^{-7} = -6/x^7$
 17. $-12x^{-5} = -12/x^5$
 18. $-12x^3 + x^7 = 12x^3 + 1/x^7$
 19. $-1/x^2$
 20. $-9x^{-4} = -9/x^4$

B) 1. $0 + 2 \cdot (2x) = 4x$
 2. $2x^2 + 2x \cdot 2x = 6x^2$
 3. $6x(x+7) + 3x^2 = 9x^2 + 42x$
 4. $6x^2(x^2+x-5) + 2x^3(2x+1) = 8x^4 + 8x^3 - 30x^2$
 5. $(x+7) + (x-7) = 2x$

6. $2 \cdot (2x+3) + 2(2x+3) = 4(2x+3) = 8x+12$
 7. $(6x+7)(x-2) + (3x^2+7x) = 9x^2+2x-14$
 8. $x^{-2}(x^2+4) + (3-1/x)(2x) = 6x-1+4/x^2$
 9. $2x(x^2+1) + (x^2-1)2x = 4x^3$
 10. $\frac{3}{x^2}(3-2x) + (2-\frac{3}{x}) \cdot \frac{2}{x^2} = \frac{13}{x^2} - \frac{12}{x^3}$

11. $\sin x + x \cos x$
 12. $\cos^2 x - \sin^2 x$

13. $\frac{\cos x}{\cos^2 x} + \lg x (-\sin x) = \frac{1-\sin^2 x}{\cos x} = \cos x$

14. $9x^2 \sin x + 3x^3 \cos x = 3x^2(3 \sin x + x \cos x)$

15. $\cos x(1-\sin x) + (1+\sin x)(-\cos x) = -2 \sin x \cos x$

16. $2x^2(2 \lg x) + 2(x^3-1)(1+\lg^2 x) = 6x^2 \lg x + 2x^3 \lg^2 x - 2 \lg^2 x + 2x^3 - 2$

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

18. $3(x+1)(x+2) + 3x[(x+2)+(x+1)] = 3x(x+1) + 3x(x+2) + 3(x+1)(x+2)$

19. $3(\cos x - (x-2)\sin x) = 6 \sin x + 3 \cos x - 3x \sin x$

20. $x(16x^2-27x+10) \lg x + x^2(4x-5)(x-1)/\cos^2 x$

C) 1. $-1/x^2$
 2. $-1/x^3$
 3. $2/3$
 4. $-3/2x^2$
 5. $-(2x+3)/(x^2+3x-6)^2$

6. $21/9x^2 = 7/3x^2$
 7. $4(5-x^2)/(x^2+5)^2$
 8. $-11/(5x-2)^2$
 9. $(x^2+8)/(x+2)^2 - 1$
 10. $(x^4+12x^2-16x)/(x^3-8)^2$

11. $-\cos x / \sin^2 x$
 12. $-1/\sin^2 x$
 13. $(x \cos x - 2 \sin x)/x^3$
 14. $x^2(3 \cos x + x \sin x)/\cos^2 x$
 15. $(3 \sin x - 1)/\cos^2 x$

D) 1. $2 \cdot 2x \cdot 2 = 8x$
 2. $3(3x^2)^2 \cdot 6x = 18x(3x^2)^2$
 3. $2(x+2)$
 4. $3(x-1)^2$
 5. $\frac{2x}{2\sqrt{x^2-1}} = \frac{x}{\sqrt{x^2-1}}$

6. $-2(5x^2-6x+4)^{-3}(\log x - 6)$

7. $-2(x+3)^{-3}$

8. $\frac{1}{2}(5x-4)^{-1/2} \cdot 5 = \frac{5}{2\sqrt{5x-4}}$

9. $(6x+1)^{2/3} = \frac{2}{3} \frac{6}{\sqrt[3]{6x+1}} = \frac{4}{\sqrt[3]{6x+1}}$

10. $\frac{3}{2} \sqrt{2x+3} \cdot \frac{2}{2} = 3\sqrt{2x+3}$

11. $2 \cos 2x$

12. $9/\cos^2(3x)$

13. $-2x \sin(x^2)$

14. $(2x-3) \cos(x^2-3x+2)$

15. $\frac{\cos x}{2\sqrt{\sin x}}$

16. $2 \sin x \cos x$

17. $-3 \cos^2(4x^2-1) \sin(4x^2-1) \cdot 8x$

18. $\frac{-2 \lg(1/x)}{x^2 \cos^2(1/x)}$

19. $+2 \cos^{-3}(x^2+1) \sin(x^2+1) \cdot 2x$

20. $\frac{2}{3} \lg^{-1/3} x \cdot (1+\lg^2 x)$