DERIVADAS

1. $y = 5x^6 - 3x^5 + 3x^3 - 2$

2. $y = x^{-4} + 2x^{-3} + x - 4$

3. $y = 3x^{10} + 2\sqrt{x} + \dfrac{3}{x}$

4. $y = \sqrt{3} \cdot x^3 - \pi \cdot x + \sqrt{3}$

5. $y = 4\,\text{senx} - 3\,\cos x$

6. $y = 2\sqrt{x} + \dfrac{2}{x} + x^5$

7. $y = 4x^3 + 2x^3 - x^3 + 4$

8. $y = \dfrac{\pi}{2} \cdot \cos x - 3\sqrt{x}$

9. $y = \cos(3x)$

10. $y = \cos^2(x^3)$

11. $y = \text{sen}\,(3x^2 - 2x)$

12. $y = \cos(x^2)$

13. $y = \text{sen}^3(2x^2)$

14. $y = \cos^4(3x^4)$

15. $y = 3\,\text{sen}^2(2x-3)$

16. $y = \cos^5(3x^2)$

17. $y = \cos\,(\text{senx})$

18. $y = \cos^2(\text{sen}(3x))$

19. $y = \sqrt[3]{\cos^2 x}$

20. $y = \sqrt[3]{\cos^2(x^2)}$

21. $y = \sqrt{x^2 - 3x}$

22. $y = \sqrt[3]{(x^2 - 3x)^2}$

23. $y = \left(2\sqrt{x} - 3x\right)^3$

24. $y = \sqrt[3]{\text{sen}^2 x}$

25. $y = \sqrt[5]{\text{sen}(3x)}$

26. $y = \sqrt{3x - \text{senx}}$

27. $y = \left(3x^2 - \sqrt{1 - x^2}\right)^3$

28. $y = \text{sen}\left(\sqrt{3x^2 - 5x}\right)$

29. $y = \sqrt{\text{sen}^3 x + (x-1)^3}$

30. $y = \cos^3\left(x^2 - 3\sqrt{x}\right)$

31. $y = \dfrac{x}{5}$

32. $y = \dfrac{5}{x}$

33. $y = \dfrac{x^4 - 3x}{4}$

34. $y = \dfrac{x^3 - 3}{x}$

35. $y = \dfrac{(x^4 - 3x)^2}{3}$

36. $y = \dfrac{(x-1)^3}{3x}$

37. $y = \dfrac{x^2}{x^2 - 1}$

38. $y = \dfrac{\sqrt{3x}}{x}$

39. $y = \sqrt{\dfrac{3}{x}}$

40. $y = \dfrac{x}{\sqrt{3x}}$

41. $y = \sqrt[3]{3x^2 - \text{senx}}$

42. $y = l\,n(3x-1)$

43. $y = l\,n\,(x^2 - 3x)$

44. $y = l\,n\,\sqrt{x-2}$

45. $y = \log_2(3x^2)$

46. $y = e^{x^2}$

47. $y = 2^x$

48. $y = e^{x^2 - 2x}$

49. $y = 3^{\text{sen}\,x}$

50. $y = tg\,(x^3)$

51. $y = 3\,e^{x^2 - 3x}$

52. $y = \sqrt{e^{\cos x}}$

53. $y = 3\,tg^2\,x$

54. $y = (x^2 - 1) \cdot (x - 1)$

55. $y = x^2 \cdot l\,n\,x$

56. $y = e^{x^2} \cdot \cos x$

57. $y = x^4 \cdot e^{3x}$

58. $y = e^{x^4 - 3x^2} \cdot \text{sen}\,x$

SOLUCIONES   Todas las soluciones se dan sin simplificar

1. $y' = 30\,x^5 - 15\,x^4 + 9\,x^2$ 2. $y' = -4\,x^{-5} - 6\,x^{-4} + 1$ 3. $y' = 30\,x^9 + \dfrac{1}{\sqrt{x}} - \dfrac{3}{x^2}$

4. $y' = 3\sqrt{3}\ .\ x^2 - \pi$ 5. $y' = 4\cos x + 3\,sen\,x$ 6. $y' = \dfrac{1}{\sqrt{x}} - \dfrac{2}{x^2} + 5\,x^4$ 7. $y' = 15\,x^2$

8. $y' = -\dfrac{\pi}{2}\,sen\,x - \dfrac{3}{2\sqrt{x}}$ 9. $y' = -3\,sen(3x)$ 10. $y' = -2\cos(x^3)\ .\ sen(x^3)\ .\ 3\,x^2$

11. $y' = \cos(3\,x^2 - 2x)\ .\ (6x - 2)$ 12. $y' = -sen(x^2)\ .\ 2x$ 13. $y' = 3\,sen^2(2\,x^2)\ .\ \cos(2\,x^2)\ .\ 4x$

14. $y' = 4\cos^3(3\,x^4)\ .\ \left(-sen(3\,x^4)\right)\ .\ 12\,x^3$ 15. $y' = 6\,sen(2x-3)\ .\ \cos(2x-3)\ .\ 2$

16. $y' = 5\cos^4(3\,x^2)\ .\ (-sen(3\,x^2))\ .\ 6x$ 17. $y' = -sen(senx)\ .\ cosx$

18. $y' = 2\cos(sen3x)\ .\ (-sen(sen3x))\ .\ \cos 3x\ .\ 3$ 19. $y' = \dfrac{-2\cos x\ .\ senx}{3\ \sqrt[3]{\cos^4 x}}$

20. $y' = \dfrac{-2\cos(x^2)\ .\ sen(x^2)\ .\ 2x}{3\ \sqrt[3]{\cos^4(x^2)}}$ 21. $y' = \dfrac{2x-3}{2\ \sqrt{x^2 - 3x}}$ 22. $y' = \dfrac{2\ (x^2 - 3x)\ (2x-3)}{3\ \sqrt[3]{(x^2 - 3x)^4}}$

23. $y' = 3\left(2\sqrt{x} - 3x\right)^2 .\ \left(\dfrac{1}{\sqrt{x}} - 3\right)$ 24. $y' = \dfrac{2\,senx\ cosx}{3\ \sqrt[3]{sen^4 x}}$ 25. $y' = \dfrac{3\,\cos 3x}{5\ \sqrt[5]{sen^4(3x)}}$

26. $y' = \dfrac{3 - cosx}{2\ \sqrt{3x - senx}}$ 27. $y' = 3\left(3\,x^2 - \sqrt{1 - x^2}\right)^2 .\ \left(6x - \dfrac{-2x}{2\ \sqrt{1 - x^2}}\right)$

28. $y' = \cos\left(\sqrt{3\,x^2 - 5x}\right).\ \dfrac{6x - 5}{2\ \sqrt{3\,x^2 - 5x}}$ 29. $y' = \dfrac{3\,sen^2 x\ cosx + 3(x-1)^2}{2\ \sqrt{sen^3 x + (x-1)^3}}$

30. $y' = -3\cos^2\left(x^2 - 3\sqrt{x}\right).\ sen\left(x^2 - 3\sqrt{x}\right).\ \left(2x - \dfrac{3}{2\sqrt{x}}\right)$ 31. $y' = \dfrac{1}{5}$ 32. $y = -\dfrac{5}{x^2}$

33. $y' = \dfrac{4\,x^3 - 3}{4}$ 34. $y' = 2x + \dfrac{3}{x^2}$ 35. $y' = \dfrac{2(x^4 - 3x)^2 .\ (4\,x^3 - 3)}{3}$

36. $y' = \dfrac{3(x-1)^2 .\ 3x - 3(x-1)^3}{(3x)^2}$ 37. $y' = \dfrac{2x\ (x^2 - 1) - x^2 .\ 2x}{(x^2 - 1)^2}$ 38. $y' = \dfrac{\dfrac{3}{2\sqrt{3x}}\ .\ x - \sqrt{3x}}{x^2}$

39. $y' = \dfrac{1}{2\sqrt{\dfrac{3}{x}}}\ .\ \dfrac{-3}{x^2}$ 40. $y' = \dfrac{\sqrt{3x} - x\,\dfrac{3}{2\sqrt{3x}}}{3x}$ 41. $y' = \dfrac{6x - cosx}{3\ \sqrt[3]{(3\,x^2 - senx)^2}}$

42. $y' = \dfrac{3}{3x - 1}$ 43. $y' = \dfrac{2x - 3}{x^2 - 3x}$ 44. $y' = \dfrac{\dfrac{1}{2\sqrt{x-2}}}{\sqrt{x-2}}$ 45. $y' = \dfrac{6x}{3\,x^2\ .\ ln2}$

46. $y' = e^{x^2}\ .\ 2x$ 47. $y' = 2^x\ .\ ln2$ 48. $y' = e^{x^2 - 2x}\ .\ (2x - 2)$ 49. $y' = 3^{sen\,x}\ .\ \cos x\ .\ ln3$

50. $y' = \dfrac{3\,x^2}{\cos^2(x^3)}$ 51. $y' = 3\,e^{x^2 - 3x}\ .\ (2x - 3)$ 52. $y' = \dfrac{-e^{cosx}\,senx}{2\ \sqrt{e^{cosx}}}$ 53. $y' = \dfrac{6\,tgx}{\cos^2 x}$

54. $y = 2x\,(x-1) + (x^2 - 1)$ 55. $y' = 2x\ .\ ln\,x + \dfrac{x^2}{x}$ 56. $y' = e^{x^2}\,2x\ \cos x - e^{x^2}\,senx$

57. $y' = 4\,x^3 \cdot e^{3x} + x^4\,e^{3x} \cdot 3$

58. $y' = e^{x^4 - 3x^2} \cdot (4\,x^3 - 6x)\,sen\,x + e^{x^4 - 3x^2}\,\cos x$