

CALCOLARE LE DERIVATE PRIME DELLE SEGUENTI FUNZIONI:

1. $y = \sqrt[3]{x^2} + 2x - 1$	2. $y = \frac{1}{\sqrt{x}} + x$	3. $y = \frac{x}{\sqrt{x}}$	4. $y = \frac{\sqrt{x}}{x}$	5. $y = \frac{\sqrt{x}}{\sqrt[3]{x^2}}$	6. $y = \frac{6\sqrt[3]{x} + 6\sqrt[3]{x^2} + 4\sqrt[4]{x^3}}{\sqrt{x}}$
7. $y = (\ln x - 3) \cdot \ln x$	8. $y = \frac{1}{\sqrt{x}} \cdot e^x \cdot \ln x$	9. $y = (e^x + 3) \cdot \ln x$	10. $y = \frac{x^2 - 5x + 4}{2x^2 - x - 1}$	11. $y = \frac{2x^2 + 4x - 3}{3x^2 + 6x + 5}$	12. $y = \frac{1 - \sqrt{x}}{1 + \sqrt{x}}$
13. $y = \frac{1}{\operatorname{sen} x}$	14. $y = \frac{x + e^x}{x - e^x}$	15. $y = \frac{\ln x}{3x}$	16. $y = \frac{x \cdot \ln x}{1 + x}$	17. $y = \frac{x - \ln x}{x + \ln x}$	18. $y = \frac{1}{\cos x}$
19. $y = \frac{4}{\operatorname{tg} x}$	20. $y = \frac{1}{\operatorname{arsen} x}$	21. $y = \frac{1}{\operatorname{arctg} x}$	22. $y = \frac{x^3}{\ln x}$	23. $y = \sqrt{e^{2x} - 2e^x}$	24. $y = \operatorname{sen} x \cdot e^{\cos x}$
25. $y = (\operatorname{arctg} x)^3$	26. $y = \operatorname{arctg}(e^x)$	27. $y = \frac{1}{x^3} - 12x$	28. $y = \sqrt{x} + 2x$	29. $y = \operatorname{sen} x \cdot 2x^3$	30. $y = \frac{1}{3} x^3 \left(\ln x - \frac{1}{3} \right)$
31. $y = \frac{x^2 - x + 1}{x^2 + x - 2}$	32. $y = \frac{x^2 - 2x - 1}{(x-1)^2}$	33. $y = \frac{x^2 - x - 2}{(x-3)^2}$	34. $y = \frac{x^2 - 2x - 3}{x - 5}$	35. $y = \frac{2 - x}{3(x-1)^3}$	36. $y = \sqrt{\frac{x+1}{3x-1}}$
37. $y = \cos x \cdot \operatorname{sen} 2x$	38. $y = x \cdot \cos x$	39. $y = 3x \cdot \log_2 4x$	40. $y = \ln(\cot g 2x)$	41. $y = \ln \sqrt{\frac{4 + e^x}{e^x}}$	42. $y = \operatorname{arctg} \frac{2x}{1 - x^2}$

STUDIARE LE SEGUENTI FUNZIONI IN UNA VARIABILE

1. $y = -2x^3 + x^2 + 2x - 1$	2. $y = \ln \frac{x}{x+2}$	3. $f(x) = \frac{x^2 + 2x + 1}{x}$	4. $f(x) = e^{\frac{x-1}{2x}}$	5. $f(x) = \frac{1 - \ln x}{\ln x}$	6. $f(x) = \frac{4x^2 - 3}{5(x-1)}$	7. $f(x) = \sqrt{4 - x^4}$
8. $y = -x^4 + 3x^2 - 2$	9. $f(x) = \frac{x^2 - 1}{x^2 + 1}$	10. $f(x) = \sqrt{\frac{x}{x+3}}$	11. $f(x) = \frac{1}{e^{x^2}}$	12. $f(x) = \frac{x^2 + x + 1}{x^2 + 1}$	13. $f(x) = \frac{1}{x^2 + 1}$	14. $f(x) = \sqrt[3]{\frac{x+1}{x^2}}$

DETERMINARE IL DOMINIO DELLE SEGUENTI FUNZIONI IN DUE VARIABILI:

1. $f(x, y) = \frac{x - y}{\sqrt{x^2 + y^2 - 2x}}$	2. $f(x, y) = \ln(x^2 + 4y^2 - 1)$	3. $f(x, y) = \sqrt{x^2 - y^2 - 1} + \sqrt{x - y}$	4. $f(x, y) = \frac{\sqrt{x^2 + y^2}}{x^2 - 4y^2 - 4}$	5. $f(x, y) = \frac{\sqrt{x^2 - y}}{\sqrt{2x - y^2}}$
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CALCOLARE LE DERIVATE PARZIALI PRIME DELLE SEGUENTI FUNZIONI:

1. $z = \sqrt{\frac{x^2 - y}{x + y^2}}$	2. $z = \ln(\sin xy)$	3. $z = \frac{\operatorname{sen} x \cos y}{\operatorname{sen} x + \cos y}$	4. $z = e^{\sqrt{x+y^2}}$	5. $z = \operatorname{arctg} \sqrt{\frac{x^2 - y^2}{x^2 + y^2}}$	6. $z = x + y \cos(x^2 y)$
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DETERMINARE I PUNTI DI MAX/MIN/SELLA DELLE SEGUENTI FUNZIONI

1. $z = y^2 - x^2 + 3$	2. $z = x^2 + 2y^2 - 4y + 3$	3. $z = \frac{1}{3}x^3 + y^2 + xy^2 - 4x$	4. $z = -x^3 + 3y^3 - 36y + 12x + 3$	+ ES. PAGG. 1278-1279-1280-1322-1324-1326-1328-1330-1331-1336-1337-1339-1341
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