Pochodne - przykładowe zadania

1	$f(x) = 2x^4 + 3x^3 - x^2 + 4x - 1$	$f'^{(x)} = 8x^3 + 9x^2 + 2x + 4$
2	$f(x) = 9x^2 - \sqrt[3]{x} - \frac{2}{\sqrt{x}} + \frac{3}{x^2} + 4$	$f'(x) = 18x - \frac{1}{3\sqrt[3]{x^2}} + \frac{1}{x\sqrt{x}} - \frac{6}{x^3}$
3	$f(x) = 3sinx + cosx - x$	$f'(x) = 3cosx - sinx - 1$
4	$f(x) = tgx - x$	$f'(x) = \frac{1}{\cos^2 x} - 1$
5	$f(x) = x^2\, sinx + 2x\, cosx - 2sinx$	$f'^{(x)} = x^2 cosx$
6	$f(t) = t^2 \ln t - t^3$	$f'(t) = 3t(2\ln t + 1 - t)$
7	$f(x) = (x^2 + 1)\log x$	$f'(x) = 2x\, logx + \frac{x^2 + 1}{x \ln 10}$
8	$f(x) = \frac{\ln x}{x^5} + \frac{1}{5x^5}$	$f'(x) = -\frac{5\ln x}{x^6}$
9	$f(x) = \frac{2^x - 1}{2^x + 1}$	$f'(x) = \frac{2^{x+1}\ln 2}{(2^x + 1)^2}$
10	$f(x) = \frac{\ln x}{1 - \ln x}$	$f'(x) = \frac{1}{x(1 - \ln x)^2}$
11	$f(x) = \frac{\cos x}{1 + 2\sin x}$	$f'(x) = \frac{-(2 + \sin x)}{(1 + 2\sin x)^2}$
12	$f(x) = \frac{x^3}{(1 + x)^2}$	$f'(x) = \frac{x^2(3 + x)}{(1 + x)^3}$
13	$f(x) = \frac{(x + 1)^2}{2x}$	$f'(x) = \frac{x^2 - 1}{2x^2}$
14	$f(x) = \cos x^3$	$f'(x) = -3x^2 \sin x^3$
15	$f(x) = ctg(1 + x^2)$	$f'(x) = \frac{-2x}{\sin^2(1 + x^2)}$
16	$f(x) = ln^2(x^2 - 1)$	$f'(x) = \frac{\ln(x^2 - 1)}{x^2 - 1}$
17	$f(x) = 3^{2x^2}$	$f'(x) = 4x3^{2x^2}\ln 3$
18	$f(x) = 2\sqrt{x}e^{-x}$	$f'(x) = \frac{1 - 2x}{\sqrt{x}}e^{-x}$
19	$f(x) = (2x + 1)2^{2x+1}$	$f'(x) = 2^{2(x+1)}[1 + (2x + 1)\ln 2]$

20	$f(x) = x^4\, ln^4\, x$	$f'(x) = 4x^3\, ln^3\, x\, (\ln x + 1)$
21	$f(x) = \dfrac{x^2 e^{x^2}}{x^2 + 1}$	$f'(x) = \dfrac{2xe^{x^2}(x^4 + x^2 + 1)}{(x^2 + 1)^2}$
22	$f(x) = \left(\dfrac{x-1}{x+1}\right)^4$	$f'(x) = \dfrac{8(x-1)^3}{(x+1)^5}$
23	$f(x) = tg^2 \dfrac{x}{2}$	$f'(x) = \dfrac{\sin \frac{x}{2}}{cos^3 \frac{x}{2}}$