Derivujte bez úprav:

1. $y = \sqrt{3x-1} - \mathrm{e}^{2-x} - \sin x^2 + \operatorname{arctg} x - \ln(\cos x) + \dfrac{1}{\sqrt[3]{x}}$
2. $y = \sqrt[4]{3-2x} + 2^{x^2} - \cos(1-x) + \arcsin 2x - \ln(x^2-x+5) + \dfrac{1}{\sqrt{2x}} - 3\sin(2-x)$
3. $y = 3x^2 - 2(x+1)^3 + 3(2-x)^4 + \dfrac{1}{(x-1)^3} - \dfrac{2}{\sqrt{2x+3}} + \dfrac{3}{\sqrt[4]{x+1}}$

Derivujte a upravte:

1. $y = \dfrac{1-x^2}{1+2x}$
2. $y = \dfrac{1-\sqrt{x}}{1+\sqrt{x}}$
3. $y = \sin^2 x - 3\cos^2 x$
4. $y = x \cdot 10^x$
5. $y = \ln\left(x + \sqrt{x^2-2}\right)$
6. $y = \sqrt{9-x^2} - 3\arcsin\dfrac{x}{3}$
7. $y = x\ln x - x$
8. $y = \ln\dfrac{1}{\sqrt{1-x^4}}$
9. $y = \dfrac{-\cos x}{\sin^2 x}$
10. $y = \ln\dfrac{1-\sin x}{1+\sin x}$
11. $y = \operatorname{arctg}\dfrac{x+1}{x-1}$

Výsledky:

1. $y' = \frac{3}{2\sqrt{3x+1}} + e^{2-x} - 2x\cos x^2 + \frac{1}{1+x^2} + \frac{\sin x}{\cos x} - \frac{1}{3\sqrt[3]{x^4}}$
2. $y' = -\frac{1}{2\sqrt[4]{(3-2x)^3}} + 2^{x^2} \cdot \ln 2 \cdot 2x - \sin(1-x) + \frac{2}{\sqrt{1-4x^2}} - \frac{2x-1}{x^2-x+5} - \frac{1}{\sqrt{8x^3}} + 3\cos(2-x)$
3. $y' = 6x - 6(x+1)^2 - 12(2-x)^3 - \frac{3}{(x-1)^4} + \frac{2}{\sqrt{(2x+3)^3}} - \frac{3}{4\sqrt[4]{(x+1)^5}}$

1. $y' = -2\frac{x^2+x+1}{(1+2x)^2}$, 2. $y' = -\frac{1}{\sqrt{x}\left(1+\sqrt{x}\right)^2}$, 3. $y' = 4\sin 2x$, 4. $y' = 10^x(1 + x\ln 10)$, 5. $y' = \frac{1}{\sqrt{x^2-2}}$, 6. $y' = -\sqrt{\frac{3+x}{3-x}}$, 7. $y' = \ln x$, 8. $y' = \frac{2x^3}{1-x^4}$, 9. $y' = \frac{1+\cos^2 x}{\sin^3 x}$, 10. $y' = -\frac{2}{\cos x}$, 11. $y' = -\frac{1}{x^2+1}$