BONUS-ŘEŠENÍ

DERIVACE

1) $y = \arcsin\sqrt{3x^2-2x}$

$$y' = \frac{1}{\sqrt{1-(\sqrt{3x^2-2x})^2}} \cdot \frac{1}{2\sqrt{3x^2-2x}} \cdot (6x-2)$$

2) $y = \ln(\sin x \cdot 5^x)$

NÁSOBENÍ

$$y = \frac{1}{\sin x \cdot 5^x} \cdot (\cos x \cdot 5^x + \sin x \cdot 5^x \cdot \ln 5)$$

3) $y = e^{\sqrt{2x^2-x}}$

$$y' = e^{\sqrt{2x^2-x}} \cdot \frac{1}{2\sqrt{2x^2-x}} \cdot (4x-1)$$

4) $y = \frac{\cos^3 x - \log_3 x}{x^5}$

$$y' = \frac{\left(3\cos^2 x \cdot \sin x - \frac{1}{x \cdot \ln 3}\right) x^5 - (\cos^3 x - \log_3 x) 5x^4}{x^{10}}$$

5) $y = \sqrt{3e^{2x}}$

$$y' = \frac{1}{2\sqrt{3e^{2x}}} \cdot 3e^{2x} \cdot 2$$

6) $y = \operatorname{arcotg}(5x-1)$

$$y' = \frac{1}{1+(5x+1)^2} \cdot 5$$

7) $y = (x^2 - 3x + 2) \cdot e^{4x}$

$y' = (2x - 3) \cdot e^{4x} + (x^2 - 3x + 2) \cdot e^{4x} \cdot 4$

8) $y = 3^{6x^2 - 3x - 4} + 3^9$

$y = 3^{6x^2 - 3x - 4} \cdot \ln 3 \cdot (12x - 3) + 0$

9) $y = \sqrt[5]{-x^2 + 2x - 15} = (-x^2 + 2x - 15)^{\frac{1}{5}}$

$y' = \frac{1}{5}(-x^2 + 2x - 15)^{-\frac{4}{5}} \cdot (-2x + 2)$

10) $y = \sqrt{3x} \cdot e^{-2x+1}$

$y' = \frac{1}{2\sqrt{3x}} \cdot 3 \cdot e^{-2x+1} + \sqrt{3x} \cdot e^{-2x+1} \cdot (-2)$

11) $y = 2x - \ln \sqrt{\frac{5x-1}{7x^2+x}}$

$y' = 2 - \frac{1}{\sqrt{\frac{5x-1}{7x^2+x}}} \cdot \frac{1}{2\sqrt{\frac{5x-1}{7x^2+x}}} \cdot \frac{5 \cdot (7x^2 + x) - (5x - 1)(14x + 1)}{(7x^2 + x)^2}$

12) $y = 5^{\sqrt{\sin(5x)}}$

$y' = 5^{\sqrt{\sin(5x)}} \cdot \ln 5 \cdot \frac{1}{2\sqrt{\sin(5x)}} \cdot \cos(5x) \cdot 5$