

№1 Найдите производные:

$$a) y = 4x^2 + \sqrt[3]{x} - \cos x$$

$$\begin{aligned} y' &= (4x^2 + \sqrt[3]{x} - \cos x)' = \\ &= (4x^2)' + (x^{\frac{1}{3}})' - (\cos x)' = \\ &= 8x + \frac{1}{3} x^{-\frac{2}{3}} + \sin x = 8x + \frac{1}{3\sqrt[3]{x^2}} + \sin x \end{aligned}$$

$$b) y = (1-x^2) \cdot \arcsin x + \sqrt{1-x^2}$$

$$\begin{aligned} y' &= ((1-x^2) \cdot \arcsin x)' = (1-x^2)' \arcsin x + \\ &+ (1-x^2) (\arcsin x)' = -2x \cdot \arcsin x + \\ &+ \frac{1-x^2}{\sqrt{1-x^2}} = -2x \cdot \arcsin x + \sqrt{1-x^2} \end{aligned}$$

$$b) y = \frac{e^x}{x^2 - 4x + 3}$$

$$\begin{aligned} y' &= \left( \frac{e^x}{x^2 - 4x + 3} \right)' = \frac{(e^x)' \cdot (x^2 - 4x + 3) - e^x (x^2 - 4x + 3)'}{(x^2 - 4x + 3)^2} = \\ &= \frac{e^x (x^2 - 4x + 3) - e^x (2x - 4)}{(x^2 - 4x + 3)^2} = \\ &= \frac{e^x x^2 - e^x 4x + 3e^x - 2xe^x + 4e^x}{(x^2 - 4x + 3)^2} = \\ &= \frac{e^x (x^2 - 6x + 7)}{(x^2 - 4x + 3)^2} \end{aligned}$$