

Найти производную второго порядка для функции:

1)

$$\begin{aligned}y &= e^x + x^2 \\y' &= (e^x + x^2)' = (e^x)' + (x^2)' = e^x + 2x \\y'' &= (y')' = (e^x + 2x)' = (e^x)' + (2x)' = e^x + 2 \\y'' &= e^x + 2\end{aligned}$$

2)

$$\begin{aligned}y &= e^{-3x}; \\y' &= (e^{-3x})' = e^{-3x}(-3x)' = -3e^{-3x}; \\y'' &= (y')' = (-3e^{-3x})' = -3(e^{-3x})' = 9e^{-3x}\end{aligned}$$

3)

$$\begin{aligned}y &= \cos 4x; \\y' &= (\cos 4x)' = -\sin 4x(4x)' = -4\sin 4x; \\y'' &= (y')' = (-4\sin 4x)' = -4(\sin 4x)' = -4\cos 4x(4x)' = -16\cos 4x\end{aligned}$$