

$$3 \cdot 2^{2x} + 27 \cdot 3^{2x} = 24 \cdot 2^{2x} - \frac{9}{2} \cdot 3^{2x} \mid \cdot 2,$$

$$6 \cdot 2^{2x} + 54 \cdot 3^{2x} = 48 \cdot 2^{2x} - 9 \cdot 3^{2x},$$

$$42 \cdot 2^{2x} = 63 \cdot 3^{2x} \mid : 3^{2x} \cdot 42, \quad \left(\frac{2}{3}\right)^{2x} = \frac{63}{42}, \quad \left(\frac{2}{3}\right)^{2x} = \frac{3}{2},$$

$$\left(\frac{2}{3}\right)^{2x} = \left(\frac{2}{3}\right)^{-1}, \quad 2x = -1, \quad x = -0,5$$