

$$4^x + 1 + 4^x = 320$$

$$4^x + 4^x = 320 - 1 = 319$$

$$2(4^x) = 319$$

зад 1: $4^x = \frac{319}{2}$

$$\log_4(4^x) = x = \log_4\left(\frac{319}{2}\right)$$

$$x = 3,6587..$$

$$3^x + 2 + 4 \cdot 3^x - 1 = 279$$

$$3^x + 4 \cdot 3^x = 279 - 2 + 1 = 280$$

$$5 \cdot 3^x = 280$$

зад 2: $3^x = \frac{280}{5} = 56$

$$\log_3(3^x) = x = \log_3(56)$$

$$x = 3,664...$$

зад 3:

$$2^{2x} - 10 \cdot 2^x + 16 = 0 \quad \text{подставляю : } 2^x = t \quad t^2 - 10t + 16 = 0$$

$$\Delta = 100 - 4 \cdot 1 \cdot 16 = 36 \quad \sqrt{\Delta} = 6 \quad t_1 = \frac{10-6}{2} = 2 \quad t_2 = \frac{10+6}{2} = 8$$

$$2^x = 2 \quad \vee \quad 2^x = 8 \quad \log_2(2^x) = x = \log_2(2) = 1 \quad \vee \quad \log_2(2^x) = x = \log_2(8) = 3$$

$$x_1 = 1 \vee x_2 = 3$$

зад 4:

$$3 \cdot 81^x - 10 \cdot 9^x + 3 = 0 \quad \text{подставляю } 3^{2x} = 9^x = t \quad 3t^2 - 10t + 3 = 0$$

$$\Delta = 100 - 4 \cdot 3 \cdot 3 = 64 \quad \sqrt{\Delta} = 8 \quad t_1 = \frac{10-8}{2 \cdot 3} = \frac{1}{3} \quad t_2 = \frac{10+8}{2 \cdot 3} = 3$$

$$9^x = \frac{1}{3} \quad \vee \quad 9^x = 3 \quad \log_9(9^x) = x = \log_9\left(\frac{1}{3}\right) = \frac{-1}{2} \quad \vee \quad \log_9(9^x) = x = \log_9(3) = \frac{1}{2}$$

$$x = -\frac{1}{2} \quad \vee \quad x = \frac{1}{2}$$