

Урок 2, задание 3

$$1) 2^x = 256 \rightarrow \log_2 256 \rightarrow \log_2 2^8 \rightarrow \underline{x = 8}$$

$$2) 2^x = 300 \rightarrow \log_2 300 \rightarrow \underline{x = 8,23}$$

$$3) \log_8 2^{8x-4} = 4$$

$$(8x-4) \log_8 2 = 4 \rightarrow 8x-4 = \frac{4}{\log_8 2} \rightarrow 8x-4 = \frac{4}{\log_{2^3} 2}$$

$$\rightarrow 8x-4 = \frac{4}{\frac{1}{3} \log_2 2} \rightarrow 8x-4 = 12 \rightarrow 8x = 16 \rightarrow \underline{x = 2}$$

$$4) 3 \log_9 (5x-5) = 5$$

$$(5x-5) \log_9 3 \rightarrow (5x-5)^{\frac{1}{2}} = 5 \rightarrow 5x-5 = 25 \rightarrow \underline{x = 6}$$

$$5) x^{\log_3 x+1} = 9$$

$$\log_3 x^{\log_3 x+1} = \log_3 9$$

$$(\log_3 x+1) \log_3 x = 2$$

$$(y+1)y = 2 \rightarrow y^2 + y - 2 = 0; D = 9; y_1 = 1$$

$$y_2 = -2$$

$$\log_3 x = 1 \rightarrow x = 3$$

$$\log_3 x = -2 \rightarrow x = 1/9$$