

$$\textcircled{1} \quad 2^x = 256$$

$$x = \log_2 256 = 8$$

$$\textcircled{2} \quad 2^x = 300$$

$$x = \log_2(300) =$$

$$= \log_2(75 \cdot 4) =$$

$$= 2 + \log_2(75) = 2 + 6,22$$

$$= 8,22$$

$$\textcircled{4} \quad 3^{\log_3(5x-5)} = 5$$

$$\log_3(3^{\log_3(5x-5)}) = \log_3 5$$

$$\log_3(5x-5) = \log_3 5$$

$$5x-5 = 9^{\log_3 5}$$

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

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

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

$$8^{x-4} \cdot \log_8 2 = 1$$

$$8^{x-4} = \frac{1}{\log_8 2} + 1$$

$$x = \frac{1}{2 \log_8 2} + \frac{1}{2}$$

$$\log_8 2 = \frac{1}{3}$$

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

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

$$y^2 + y - 2 = 0$$

$$y_1 = -2$$

$$y_2 = 1$$

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

$$x_1 = \frac{1}{5}$$

$$\log_3 x = y \Rightarrow (y+1)y = 2 \Rightarrow x_2 = 3$$