

$$\log_2(2^x - 5) - \log_2(2^x - 2) = 2 - x$$

$$\log_2 \frac{2^x - 5}{2^x - 2} = \log_2 2^{2-x}$$

$$\frac{2^x - 5}{2^x - 2} = \frac{4}{2^x}$$

$$(2^x - 5) \cdot 2^x = 4(2^x - 2)$$

$$2^{2x} - 5 \cdot 2^x - 4 \cdot 2^x + 8 = 0$$

$$2^{2x} - 9 \cdot 2^x + 8 = 0$$

Введем замену переменной $2^x = t$

$$t^2 - 9 \cdot t + 8 = 0$$

$$D = 81 - 32 = 49$$

$$t_1 = \frac{9 + 7}{2} = 8$$

$$t_2 = \frac{9 - 7}{2} = 1$$

Вернемся к замене переменной

1) $t_1 = 8$

$$2^x = 8$$

$$2^x = 2^3$$

$$x_1 = 3$$

2) $t_2 = 1$

$$2^x = 1$$

$$2^x = 2^0$$

$$x_2 = 0$$

Ответ: $x_1 = 3$; $x_2 = 0$