

$$\blacktriangleright 9. \log_2(x^2 - 5x - 300) - \log_4(x^2 + 30x + 225) = 6$$

$$\log_4(x^2 + 30x + 225) = \log_4 f(x) = \frac{\log_2 f(x)}{\log_2 4} = \frac{1}{2} \log_2 f(x)$$

$$f(x) = x^2 + 30x + 225 = (x + 15)^2$$

$$g(x) = x^2 - 5x - 300 = (x + 15)(x - 20)$$

$$g(x) = 0; \quad x_1 + x_2 = 5 \quad x_1 = -15$$

$$x_1 \cdot x_2 = -300 \quad x_2 = 20$$

$$6 = 6 \cdot 1 = 6 \log_2 2 = \log_2 2^6 = \log_2 64$$

$$\log_2 (x + 15)(x - 20) - \frac{1}{2} \log_2 (x + 15)^2 = \log_2 64 \quad | \cdot 2$$

$$2 \log_2 (x + 15)(x - 20) - \log_2 (x + 15)^2 = 2 \cdot \log_2 64$$

$$\log_2 (x + 15)^2 (x - 20)^2 = \log_2 (x + 15)^2 + \log_2 64^2$$

$$\log_2 (x + 15)^2 (x - 20)^2 = \log_2 (64^2 (x + 15)^2)$$

$$(x + 15)^2 (x - 20)^2 = 64^2 (x + 15)^2$$

$$(x + 15)^2 (x - 20)^2 - 64^2 (x + 15)^2 = 0$$

$$(x + 15)^2 ((x - 20)^2 - 64^2) = 0$$

$$(x + 15)^2 = 0$$

$$(x - 20)^2 - 64^2 = 0$$

$$x = -15$$

$$(x - 20 - 64)(x - 20 + 64) = 0$$

не удовлетв.  
обл. определ.  
лог

$$x_1 = 84$$

$$x_2 = -44$$

ОТВЕТ: -44; 84