

Решение Неравенства №1



Александра Атрахимович, 10 «А» класс

$$\log_{\frac{x}{3}} (3x^2 - 2x + 1) \geq 0$$

$$\log_{\frac{x}{3}} (3x^2 - 2x + 1) - \log_{\frac{x}{3}} 1 \geq 0$$

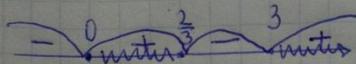
$$\left(\frac{x}{3} - 1\right) (3x^2 - 2x + 1 - 1) \geq 0$$

$$(x - 3)(3x^2 - 2x) \geq 0$$

$$3x(x - 3)\left(x - \frac{2}{3}\right) \geq 0$$

$$x(x - 3)\left(x - \frac{2}{3}\right) \geq 0$$

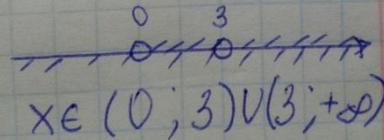
$$x = 0 \quad x = 3 \quad x = \frac{2}{3}$$



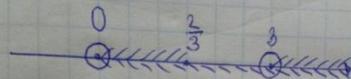
OD3:

$$\begin{cases} \frac{x}{3} > 0 \\ \frac{x}{3} \neq 1 \\ 3x^2 - 2x + 1 > 0 \end{cases}$$

$$\begin{cases} x > 0 \\ x \neq 3 \\ x \in (-\infty; +\infty) \end{cases}$$

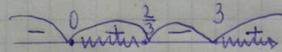


Yamew OD3:



Orbunem: $x \in (0; \frac{2}{3}] \cup (3; +\infty)$

$$\begin{aligned} \log_{\frac{x}{3}} (3x^2 - 2x + 1) &\geq 0 \\ \log_{\frac{x}{3}} (3x^2 - 2x + 1) - \log_{\frac{x}{3}} 1 &\geq 0 \\ \left(\frac{x}{3} - 1\right) (3x^2 - 2x + 1 - 1) &\geq 0 \\ (x - 3) (3x^2 - 2x) &\geq 0 \\ 3x(x - 3) \left(x - \frac{2}{3}\right) &\geq 0 \\ x(x - 3) \left(x - \frac{2}{3}\right) &\geq 0 \\ x = 0 \quad x = 3 \quad x = \frac{2}{3} \end{aligned}$$



Yemall OD3:



$$\text{Ombem: } x \in (0; \frac{2}{3}] \cup (3; +\infty)$$

$$\begin{aligned} \text{OD3:} \\ \begin{cases} \frac{x}{3} > 0 \\ \frac{x}{3} \neq 1 \\ 3x^2 - 2x + 1 > 0 \end{cases} \\ \begin{cases} x > 0 \\ x \neq 3 \\ x \in (-\infty; +\infty) \end{cases} \\ \begin{matrix} 0 & 3 \\ \text{---} & \text{---} \\ \text{---} & \text{---} \end{matrix} \\ x \in (0; 3) \cup (3; +\infty) \end{aligned}$$