

$$\log_{3x^2-2x+1} 3x^2 \geq 1$$

1 способ.

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

$$\left\{ \begin{array}{l} \underline{3x^2 - 2x + 1 > 1} \\ 3x^2 \geq 3x^2 - 2x + 1 \\ 3x^2 > 0 \end{array} \right. \quad \text{или} \quad \left\{ \begin{array}{l} \underline{0 < 3x^2 - 2x + 1 < 1} \\ 3x^2 \leq 3x^2 - 2x + 1 \\ 3x^2 > 0 \end{array} \right. \quad \left\{ \begin{array}{l} 3x^2 - 2x + 1 > 0 \\ 3x^2 - 2x + 1 < 1 \\ 2x - 1 \leq 0 \\ x \neq 0 \end{array} \right.$$

$$\left\{ \begin{array}{l} 3x^2 - 2x > 0 \\ 2x - 1 \geq 0 \\ x \neq 0 \end{array} \right. \quad \left\{ \begin{array}{l} -\infty < x < \infty \\ x(3x - 2) < 0 \\ x \leq 0,5 \\ x \neq 0 \end{array} \right. \quad \left\{ \begin{array}{l} -\infty < x < \infty \\ 0 < x < \frac{2}{3} \\ x \leq 0,5 \end{array} \right.$$

$$\left\{ \begin{array}{l} x(3x - 2) > 0 \\ x \geq 0,5 \\ x \neq 0 \end{array} \right. \quad \left\{ \begin{array}{l} x < 0 \\ x > \frac{2}{3} \\ x \geq 0,5 \end{array} \right.$$

$$\left(\frac{2}{3}; +\infty \right)$$

$$(0; 0,5]$$

$$\text{Ответ} : (0; 0,5] \cup \left(\frac{2}{3}; +\infty \right)$$

$$\log_{3x^2-2x+1} 3x^2 \geq 1$$

2 способ.

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

$$f(x) = \log_{3x^2-2x+1} x^2 - 1$$

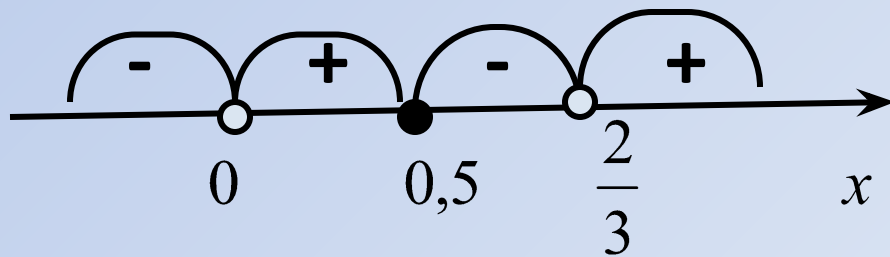
$$D(f(x)) : \begin{cases} 3x^2 - 2x + 1 > 0 \\ 3x^2 - 2x + 1 \neq 1 \\ 3x^2 > 0 \end{cases} \begin{cases} -\infty < x < \infty \\ 3x^2 - 2x \neq 0 \\ x \neq 0 \end{cases} \begin{cases} -\infty < x < \infty \\ x \neq \frac{2}{3} \\ x \neq 0 \end{cases}$$

$$\log_{3x^2-2x+1} 3x^2 - 1 = 0$$

$$\log_{3x^2-2x+1} 3x^2 = 1$$

$$3x^2 = 3x^2 - 2x + 1$$

$$x = 0,5$$



$$\text{Ответ : } (0; 0,5] \cup \left(\frac{2}{3}; +\infty \right)$$

$$\log_{3x^2-2x+1} 3x^2 \geq 1$$

3 способ.

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

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

$$\begin{cases} (3x^2 - 2x)(2x - 1) \geq 0 \\ -\infty < x < \infty \\ 3x^2 - 2x \neq 0 \\ x \neq 0 \end{cases}$$

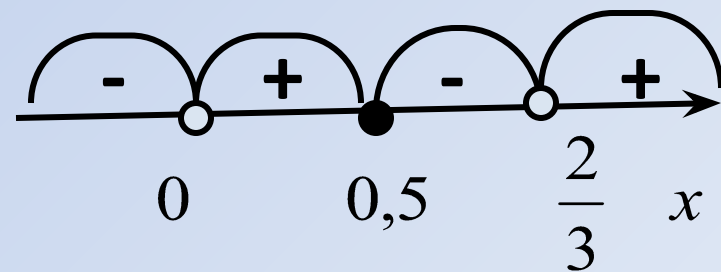
$$x = 0$$

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

$$x = 0,5$$

$$x \neq \frac{2}{3}$$

$$x \neq 0$$



$$\text{Ответ: } (0; 0,5] \cup \left(\frac{2}{3}; +\infty\right)$$