

Найдите все значения параметра a , при каждом из которых система неравенств

$$\begin{cases} x^2 + y^2 - 1 \leq -a^2 + 2a(x - y + 1) \\ x^2 + y^2 - 1 \leq 3a^2 - 2a(2x - 3y + 4) \end{cases}$$

имеет единственное решение.

$$\begin{aligned} x^2 + y^2 - 1 &\leq -a^2 + 2a(x - y + 1) \\ x^2 + y^2 - 1 &\leq 3a^2 - 2a(2x - 3y + 4) \end{aligned}$$

$$\begin{aligned} a^2 - 2a(x - y + 1) + x^2 + y^2 - 1 &+ 1 - 2y + 2x - 2xy \leq 1 - 2y + 2x - 2xy \\ (a - (x - y + 1))^2 &\leq 2 - 2y + 2x - 2xy \end{aligned}$$

$$x^2 + y^2 - 1 + a^2 - 2a(x - y + 1) \leq 0$$

$$\begin{aligned} x^2 + y^2 - 2a(x - y + 1) + a^2 &\leq 1 \\ x^2 + y^2 - 2a(x - y) + a^2 + 2a &\leq 1 \end{aligned}$$

$$\begin{aligned} 3x^2 + 3y^2 - 3 &\leq -3a^2 + 6a(x - y + 1) \\ x^2 + y^2 - 1 &\leq 3a^2 - 2a(2x - 3y + 4) \end{aligned}$$

$$\begin{aligned} x^2 + y^2 - 1 + a^2 - 2ax + 2ay - 2a &\leq 0 \\ x^2 + y^2 - 2 + a^2 - 2a + 1 - 2ax + 2ay &\leq 0 \\ x^2 + y^2 - 2 + (a - 1)^2 - 2ax + 2ay &\leq 0 \end{aligned}$$

$$\begin{aligned} 4x^2 + 4y^2 - 4 &\leq 6a(x - y + 1) - 2a(2x - 3y + 4) \\ 4x^2 + 4y^2 - 4 &\leq 6ax - 6ay + 6a - 4ax + 6ay - 8a \\ 4x^2 + 4y^2 - 4 &\leq 2ax - 2a \\ 2x^2 + 2y^2 - 2 &\leq ax - a \end{aligned}$$

$$(x - y + 1)^2 = x^2 + y^2 + 1 - 2y + 2x - 2xy$$