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$a,$

$$\begin{cases} |y| = |2 - 2x^2|, \\ 9|x| + 5|y| = a, \end{cases}$$

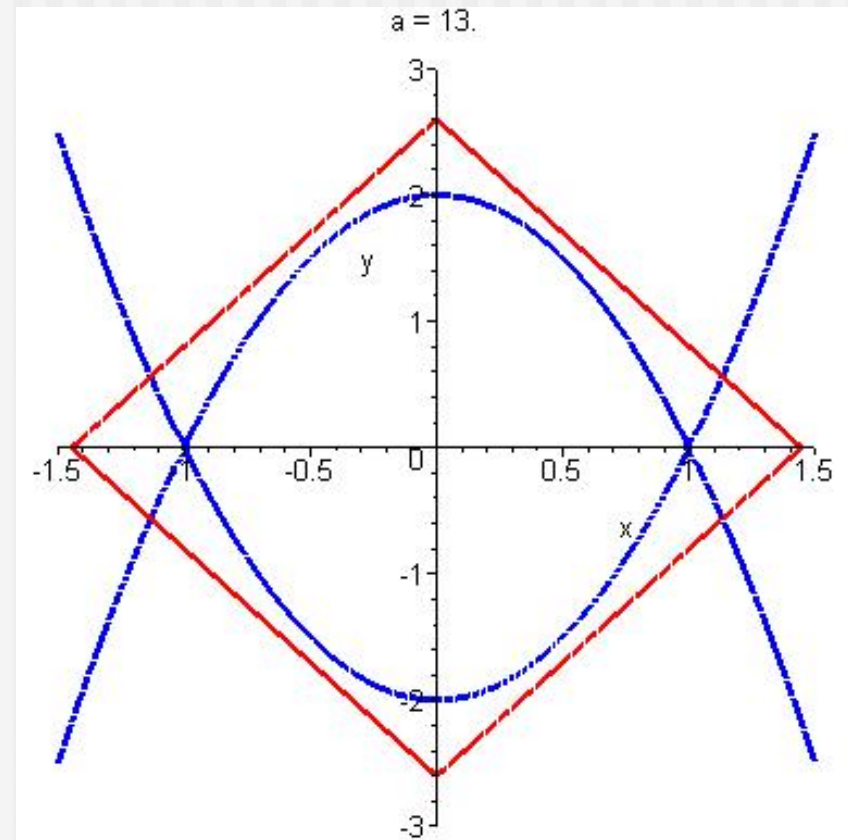
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# 1

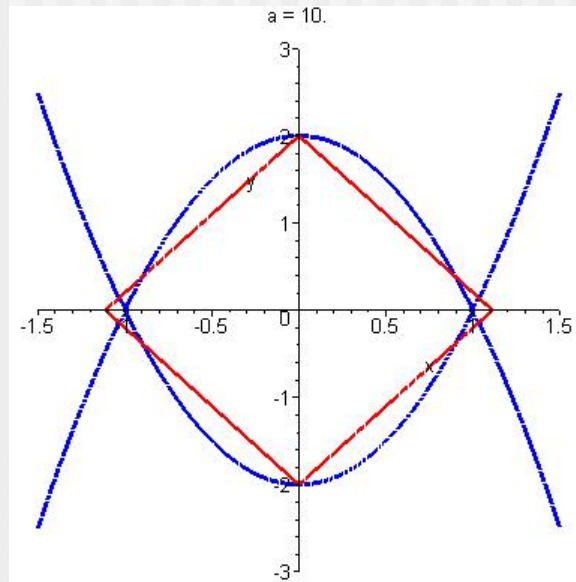
$$y = \pm(2 - 2x^2)$$

$$y = \begin{cases} \pm \frac{a - 9x}{5}, & x \geq 0, \\ \pm \frac{a + 9x}{5}, & x < 0. \end{cases}$$

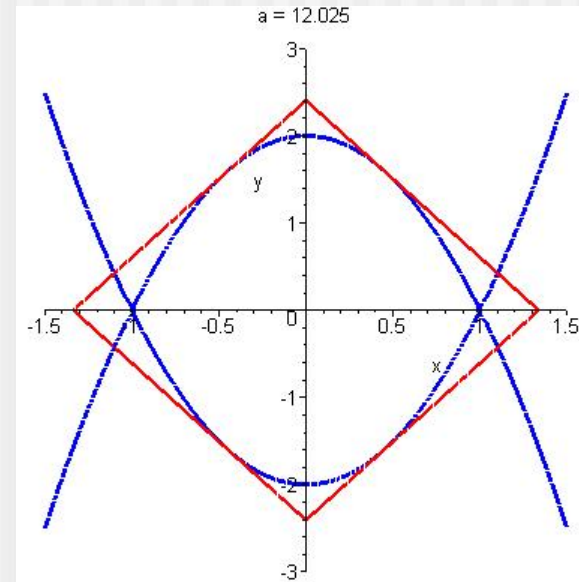


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$$9|0| + 5|\pm 2| = a,$$
$$a = 10.$$



$$2 - 2x^2 = (a - 9x)/5,$$
$$D = 81 - 40(a - 10) = 0,$$
$$a = 481/40.$$



$$: a \in (10; 481/40)$$

# 2

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$$\lg 2|x| + \lg(2-x) - \lg a = 0$$

$$x \in (-\infty; 0) \cup (0; 2)$$

$$a \in (0; +\infty)$$

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$$\lg(2|x|(2-x)) = \lg a,$$

$$2|x|(2-x) = a.$$

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# 2

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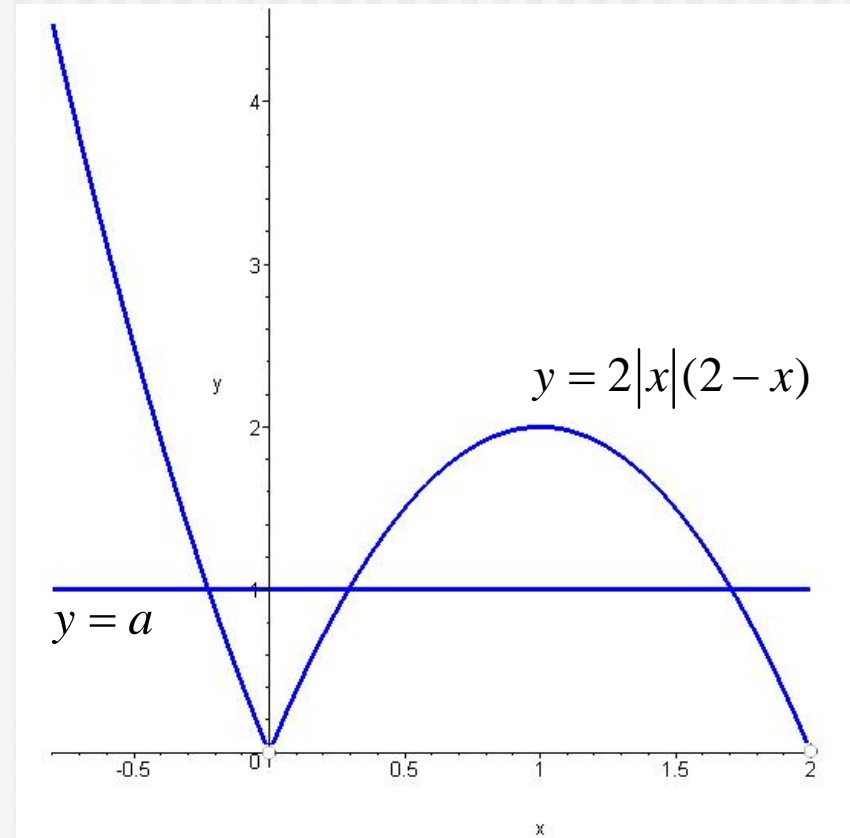
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$$y=a$$

$$: a > 2$$

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$a,$

$$x(x - 2a - 6) + a^2 < \frac{6a^2}{x} - 12a$$

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# 3

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$$x(x-6) - 2ax + 12a < \frac{6a^2}{x} - a^2,$$

$$x(x-6) - 2a(x-6) < \frac{a^2}{x}(6-x),$$

$$x(x-6) - 2a(x-6) + \frac{a^2}{x}(x-6) < 0,$$

$$\frac{(x-6)(x^2 - 2xa + a^2)}{x} < 0, \quad \frac{(x-6)(x-a)^2}{x} < 0.$$

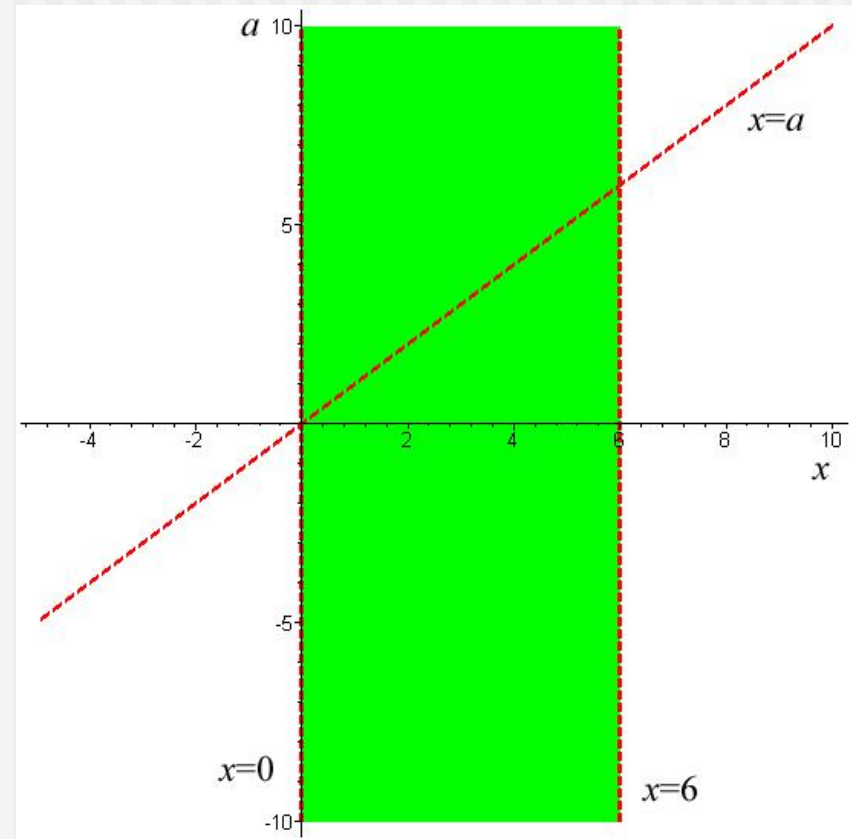
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# 3

$$a = a_0$$

$$a_0 -$$



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# 3

6,

$$a \in (-\infty; 1), a \in (5; +\infty)$$

,

$$x=a$$

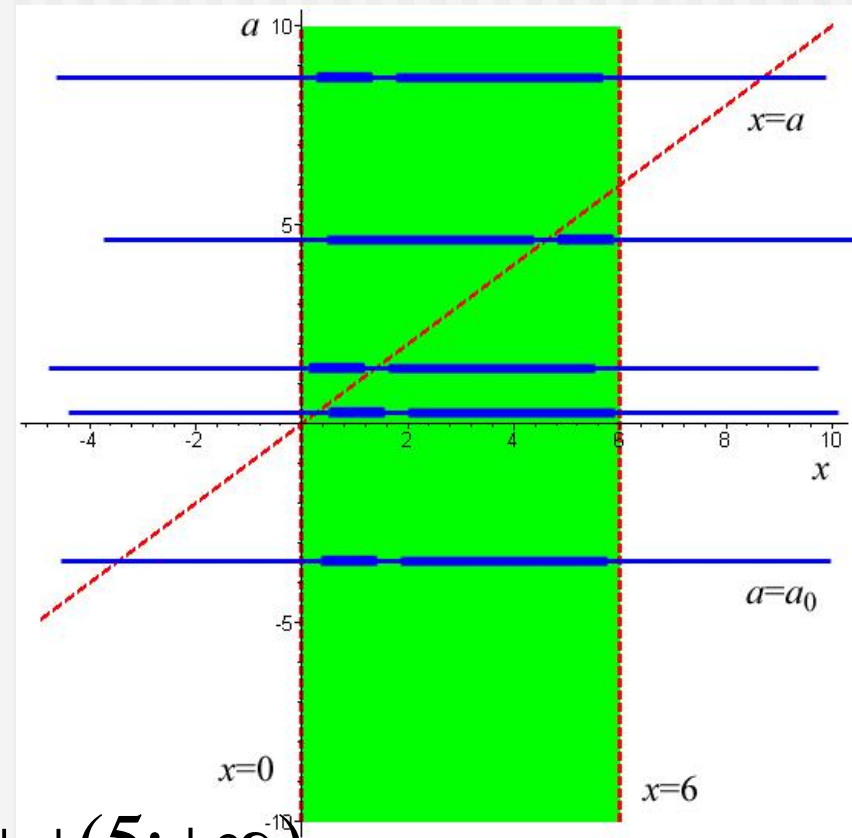
$$a \in (1; 2), a \in (4; 5)$$

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$$a \in (-\infty; 1) \cup (1; 2) \cup (4; 5) \cup (5; +\infty)$$

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$a,$

$$\begin{cases} x^2 + (5a + 2)x + 4a^2 + 2a \leq 0, \\ x^2 + a^2 = 4. \end{cases}$$

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# 4

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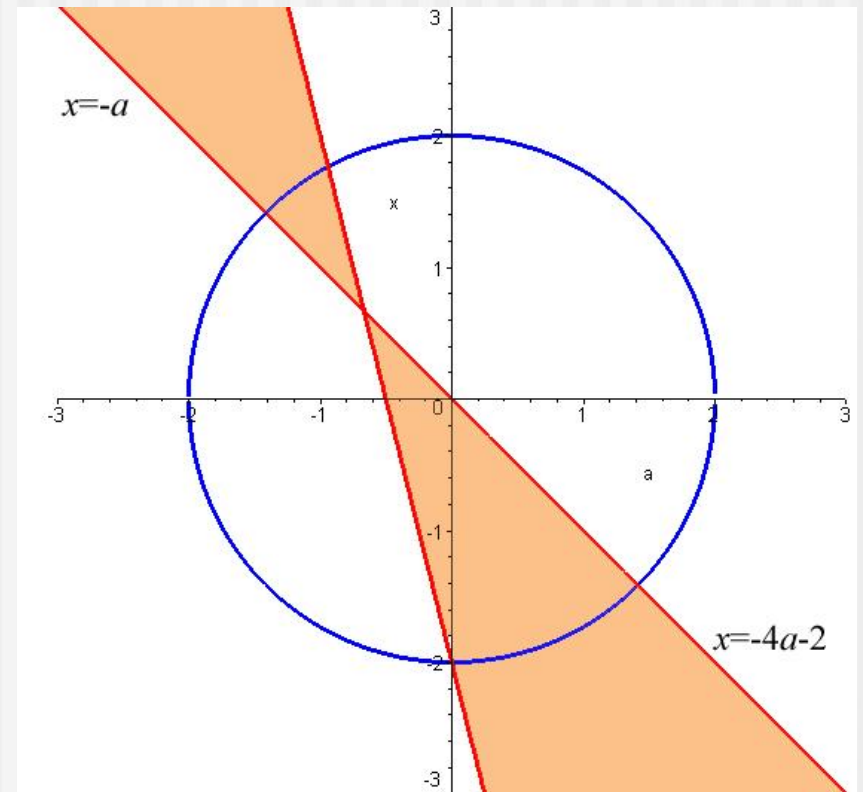
$$\begin{aligned} & \vdots \\ & x^2 + (5a + 2)x + 4a^2 + 2a = \\ & = x^2 + 4ax + 2x + ax + 4a^2 + 2a = \\ & = x(x + 4a + 2) + a(x + 4a + 2) = \\ & = (x + a)(x + 4a + 2). \end{aligned}$$

$$\begin{aligned} & \vdots \\ & \begin{cases} (x + a)(x + 4a + 2) \leq 0, \\ x^2 + a^2 = 4. \end{cases} \end{aligned}$$

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# 4



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# 4

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$$x = -4a - 2$$

$$x = -a$$

$$x^2 + a^2 = 4, \dots$$

$$x^2 + a^2 = 4,$$

$$(-4a - 2)^2 + a^2 = 4.$$

$$: a \in \left[ -\sqrt{2}; -16/17 \right] \cup \left[ 0; \sqrt{2} \right]$$

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1.

$$|\ln x| - ax = 0$$

2.

$$(p - x^2)(p + x - 2) < 0$$

$$x^2 \leq 1$$

3.

$$3(2a + 3) - x(a - x) < 3\left(\frac{3a}{x} + 2x\right)$$

3.

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4. , ,

$a$ .

5.  $a$ ,

$$(x^2 - 4)^2 \geq a|x| + 1$$

$x$ .

6.  $p$ ,

$$\log_{(x-p)} x^2 < 2$$

$x$ , ,

$$|x| < 0.01$$

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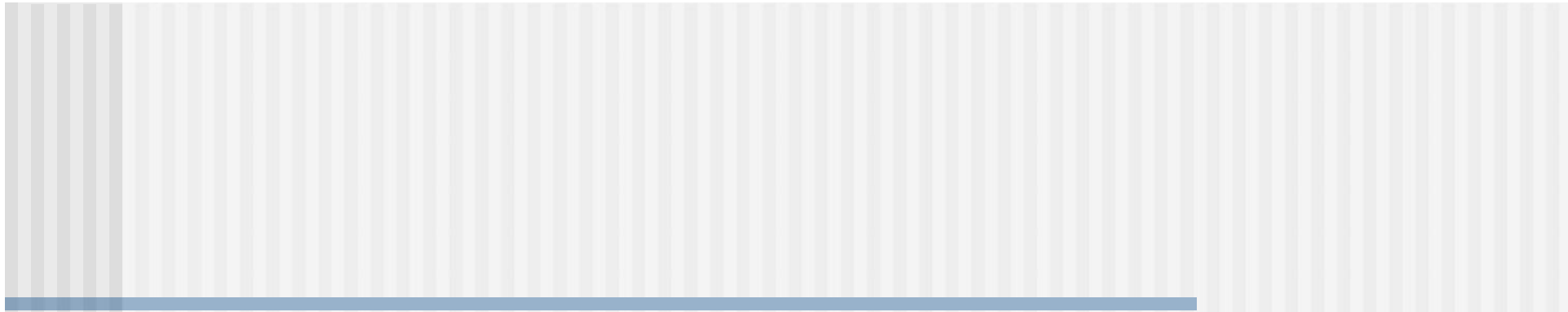
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$$5 - 3 \cos x = p(1 + \operatorname{tg}^2 x)^p,$$

$$\cos x \neq 0$$

$$: 5 - 3 \cos x = \frac{p}{\cos^2 x}$$

$$t = \cos x, t \in [-1; 0) \cup (0; 1]$$

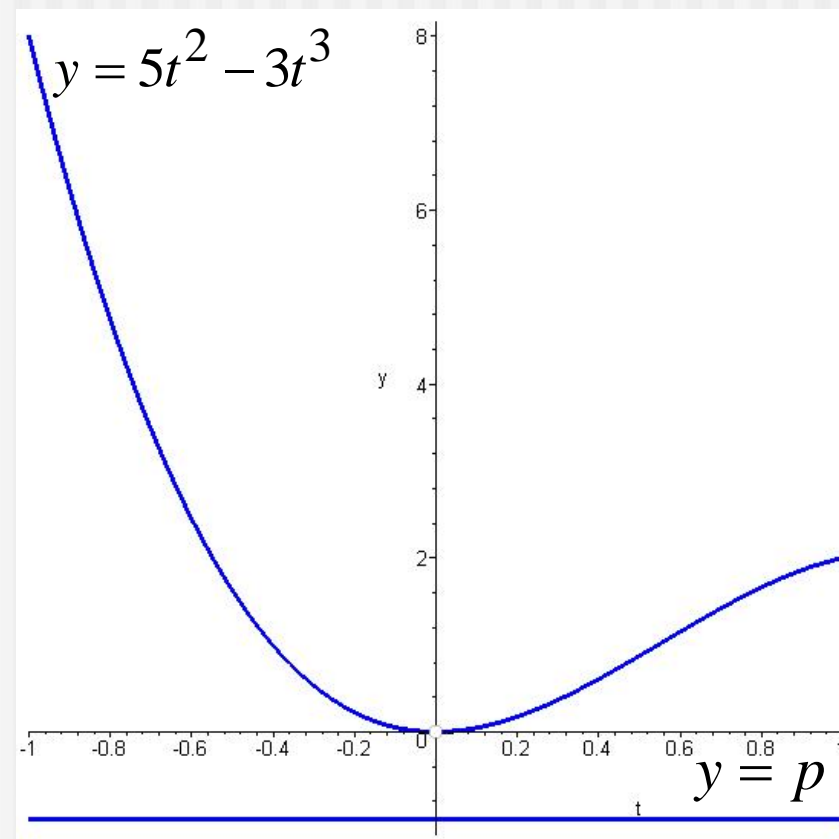
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$$5 - 3t = \frac{p}{t^2},$$
$$5t^2 - 3t^3 = p.$$

$$: p \in (0; 8]$$

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$a$

$$x^2 + 2|x - a| \geq a^2$$

$x$ .

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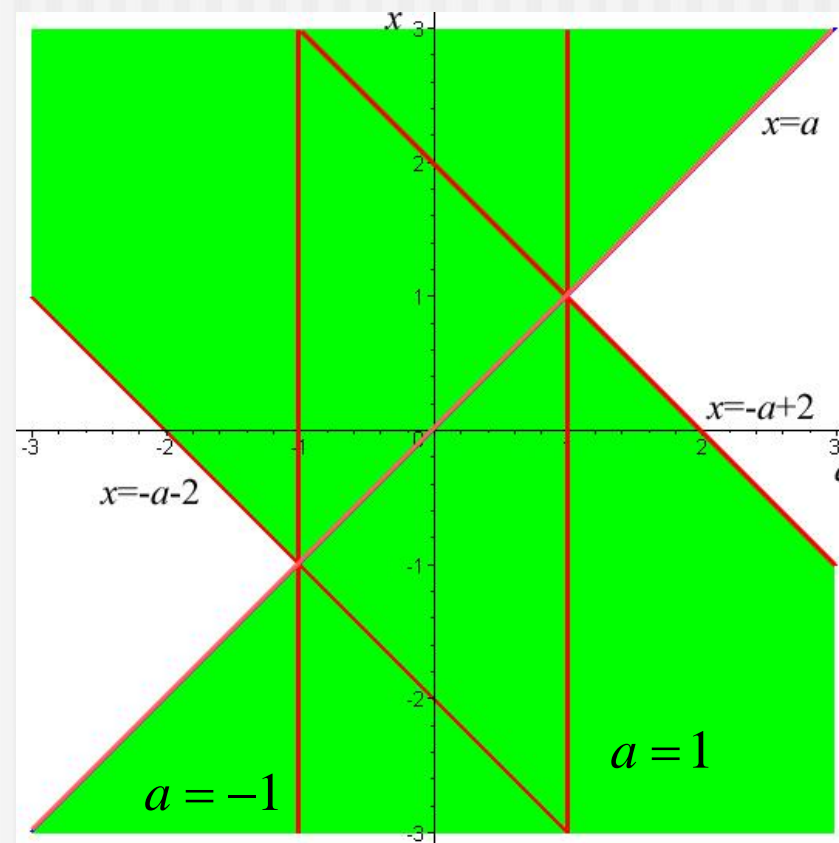
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$$\begin{array}{c}
 \vdots \\
 \left[ \begin{array}{l}
 \left\{ \begin{array}{l} x - a \geq 0, \\ x^2 + 2(x - a) \geq a^2, \end{array} \right. \\
 \left\{ \begin{array}{l} x - a < 0, \\ x^2 - 2(x - a) \geq a^2. \end{array} \right.
 \end{array} \right. \Leftrightarrow \left[ \begin{array}{l}
 \left\{ \begin{array}{l} x - a \geq 0, \\ (x - a)(x + a) + \\ + 2(x - a) \geq 0, \end{array} \right. \\
 \left\{ \begin{array}{l} x - a < 0, \\ (x - a)(x + a) - \\ - 2(x - a) \geq 0. \end{array} \right.
 \end{array} \right. \Leftrightarrow
 \end{array}$$

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$$\left[ \begin{array}{l} \left\{ \begin{array}{l} x - a \geq 0, \\ (x - a)(x + a + 2) \geq 0, \end{array} \right. \\ \left\{ \begin{array}{l} x - a < 0, \\ (x - a)(x + a - 2) \geq 0, \end{array} \right. \end{array} \right] \Leftrightarrow \left[ \begin{array}{l} \left\{ \begin{array}{l} x - a \geq 0, \\ x + a + 2 \geq 0, \end{array} \right. \\ \left\{ \begin{array}{l} x - a < 0, \\ x + a - 2 \leq 0. \end{array} \right. \end{array} \right]$$

$a_0 -$ 
 $a = a_0$ 
 $\forall x,$ 
 $: a \in [-1; 1]$ 


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