

Algebraically.

$$|2x-9|^2 < 4^2$$

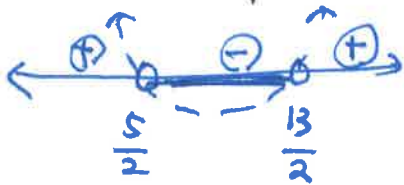
$$4x^2 - 36x + 81 < 16$$

$$4x^2 - 36x + 65 < 0$$

$$2x \quad -5$$

$$2x \quad -13$$

$$\Rightarrow (2x-5)(2x-13) < 0$$



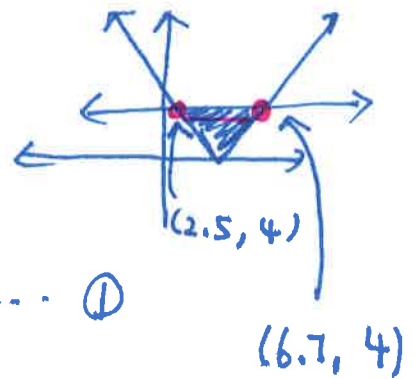
$$\left(\frac{5}{2}, \frac{13}{2} \right)$$

Graphically.

$$|2x-9| < 4$$

$$\Rightarrow |2x-9| < y_1 \dots \textcircled{1}$$

$$y_2 < 4 \dots \textcircled{2}$$



$$2.5 < x < 6.5$$

$$(2|x-1|)^2 \geq (|3-x|)^2$$

$$4(x^2 - 2x + 1) \geq (9 - 6x + x^2)$$

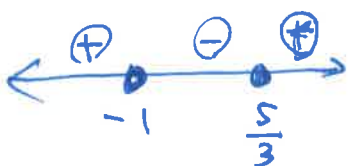
$$4x^2 - 8x + 4 \geq 9 - 6x + x^2$$

$$3x^2 - 2x - 5 \geq 0$$

$$3x \quad -5$$

$$x \quad +1$$

$$(3x-5)(x+1) \geq 0$$

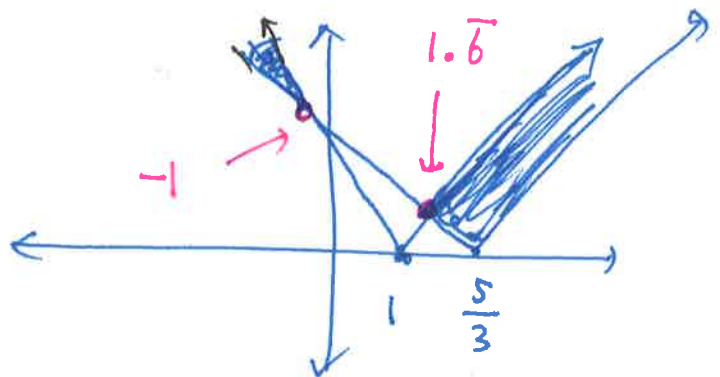


$$\Rightarrow (-\infty, -1] \cup \left[\frac{5}{3}, \infty \right)$$

$$2|x-1| \geq |3-x|$$

$$2|x-1| \geq y_1 \dots \textcircled{1}$$

$$y_2 \geq |3-x| \dots \textcircled{2}$$



$$x \leq -1 \cup x \geq \frac{5}{3}$$