

13/4/2021

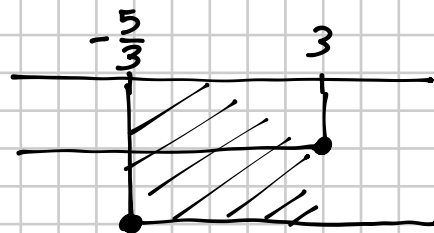
222 $|2x + 1| \leq x + 4$

$$|f(x)| \leq g(x) \Leftrightarrow \begin{cases} f(x) \leq g(x) \\ f(x) \geq -g(x) \end{cases}$$

$$\begin{cases} 2x + 1 \leq x + 4 \\ 2x + 1 \geq -(x + 4) \end{cases} \quad \begin{cases} x \leq 3 \\ 2x + 1 \geq -x - 4 \end{cases} \quad \begin{cases} x \leq 3 \\ 3x \geq -5 \end{cases}$$

$$\begin{cases} x \leq 3 \\ x \geq -\frac{5}{3} \end{cases}$$

$$-\frac{5}{3} \leq x \leq 3$$



223 $|3 - x| > \frac{1}{2}x$

$$|f(x)| > g(x) \Leftrightarrow f(x) < -g(x) \vee f(x) > g(x)$$

$$3 - x < -\frac{1}{2}x \quad \vee \quad 3 - x > \frac{1}{2}x$$

$$\frac{1}{2}x - x < -3 \quad \vee \quad -\frac{1}{2}x - x > -3$$

$$-\frac{1}{2}x < -3 \quad \vee \quad -\frac{3}{2}x > -3$$

$$x > 6 \quad \vee \quad x < 2$$

$$x < 2 \vee x > 6$$

237

$$\frac{|x-3|-1}{5-x} \leq 0$$

$$N) |x-3|-1 > 0$$

$$|x-3| > 1$$

$$x-3 < -1 \vee x-3 > 1$$

$$x < 2 \vee x > 4$$

$$D) 5-x > 0$$

$$-x > -5$$

$$x < 5$$

$$N) x < 2 \vee x > 4$$

$$x < 5$$

	2		4		5	
+	0	-	0	+		+
+		+		+	-	-
+	0	⊖	0	+	⊖	⊖

$$2 \leq x \leq 4 \vee x > 5$$

239

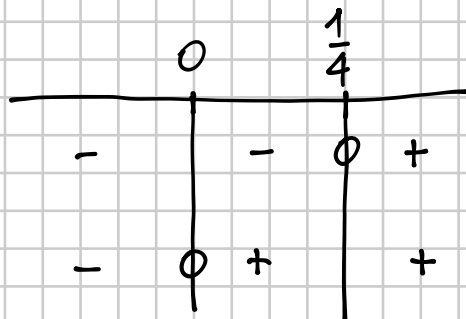
$$\frac{|4x-1|-|x|}{2x-3} \geq 0$$

$$\left[\frac{1}{5} \leq x \leq \frac{1}{3} \vee x > \frac{3}{2} \right]$$

$$N) \quad \underset{\textcircled{1}}{|4x-1|} - \underset{\textcircled{2}}{|x|} > 0$$

$$4x-1 > 0 \quad x > \frac{1}{4}$$

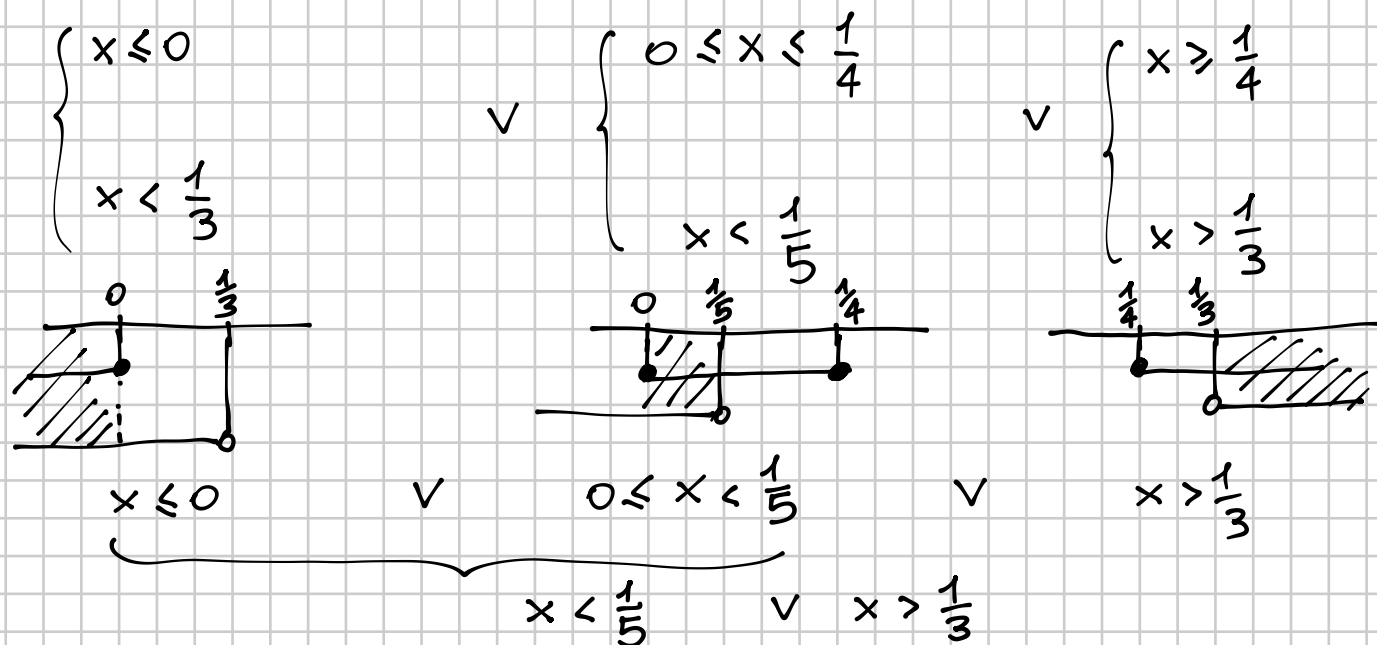
$$x > 0$$



$$\begin{cases} x \leq 0 \\ -(4x-1) + x > 0 \end{cases} \vee \begin{cases} 0 \leq x \leq \frac{1}{4} \\ -(4x-1) - x > 0 \end{cases} \vee \begin{cases} x \geq \frac{1}{4} \\ 4x-1-x > 0 \end{cases}$$

$$\begin{cases} x \leq 0 \\ -4x+1+x > 0 \end{cases} \vee \begin{cases} 0 \leq x \leq \frac{1}{4} \\ -4x+1-x > 0 \end{cases} \vee \begin{cases} x \geq \frac{1}{4} \\ 3x > 1 \end{cases}$$

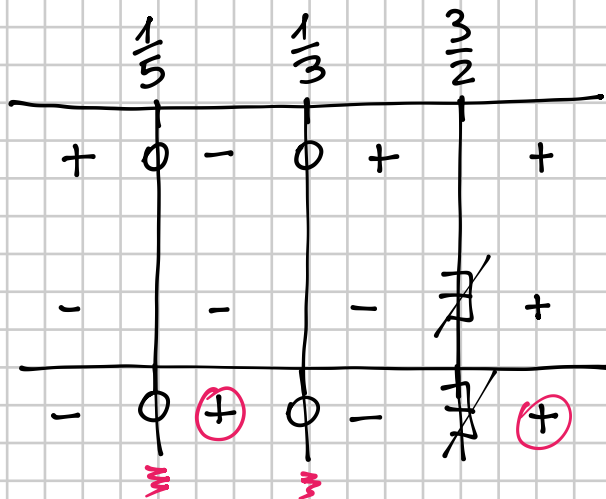
$$\begin{cases} x \leq 0 \\ -3x > -1 \end{cases} \vee \begin{cases} 0 \leq x \leq \frac{1}{4} \\ -5x > -1 \end{cases} \vee \begin{cases} x \geq \frac{1}{4} \\ x > \frac{1}{3} \end{cases}$$



$$D) \quad 2x - 3 > 0 \quad x > \frac{3}{2}$$

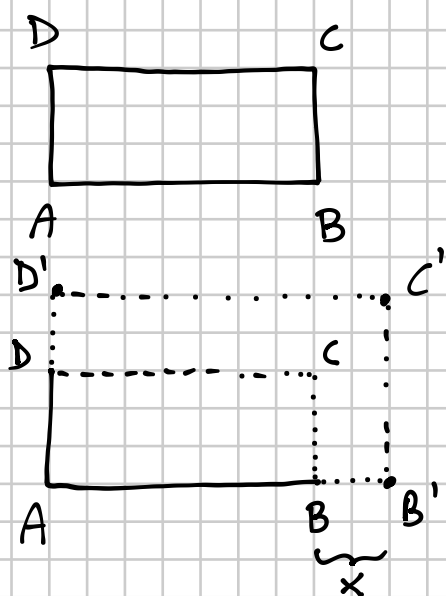
$$N) \quad x < \frac{1}{5} \vee x > \frac{1}{3}$$

$$D) \quad x > \frac{3}{2}$$



$$\boxed{\frac{1}{5} < x < \frac{1}{3} \vee x > \frac{3}{2}}$$

66 Un rettangolo $ABCD$ è tale che $AB = 6$ cm e $BC = 3$ cm. Determina di quale lunghezza occorre aumentare ciascun lato del rettangolo $ABCD$ in modo da ottenere un nuovo rettangolo, equivalente a un trapezio di altezza 7,5 cm, avente base maggiore e base minore di lunghezze rispettivamente 6 cm e 3 cm. [1,5 cm]

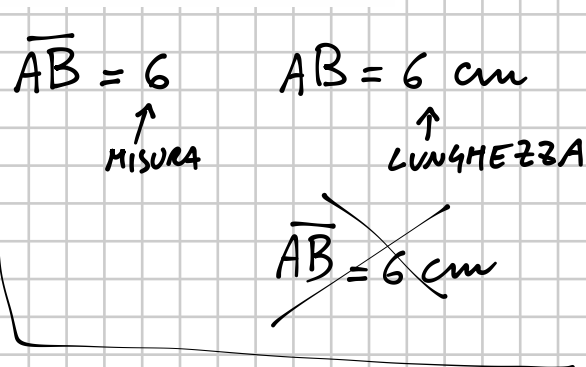


$$\overline{AB} = 6$$

$$\overline{BC} = 3$$

$$\overline{AB'} = 6 + x$$

$$\overline{B'C'} = 3 + x$$



$$(6 + x)(3 + x) = \frac{1}{2} (6 + 3) \cdot 7,5$$

$$18 + 6x + 3x + x^2 = \frac{9}{2} \cdot \frac{15}{2}$$

$$x^2 + 9x + 18 - \frac{135}{4} = 0$$

$$x^2 + 9x - \frac{63}{4} = 0$$

$$\Delta = 81 + 63 = 144$$

$$x = \frac{-9 \pm 12}{2} = \begin{cases} \frac{-9 - 12}{2} < 0 \text{ N.A.} \\ \frac{-9 + 12}{2} = \frac{3}{2} \end{cases}$$

$$x = \frac{3}{2} \Rightarrow \boxed{BB' = 1,5 \text{ cm}}$$