



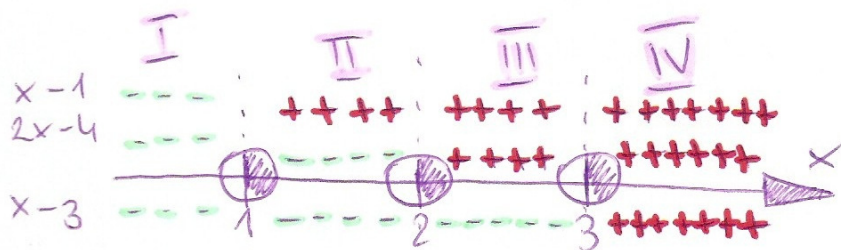
$$|x-1| + |2x-4| + |x-3| > 10$$

Firstly, we need to find the roots of all the expressions in modulus bars.

And it is : 1, 2, 3 because :

$$\begin{array}{l} x-1=0 \quad \circ \quad 2x-4=0 \quad \circ \quad x-3=0 \\ x=1 \quad \quad \quad 2x=4 \quad /:2 \quad \quad \quad x=3 \\ \quad \quad \quad \quad \quad \quad \quad \quad x=2 \end{array}$$

Secondly, we draw an axis on which we write the roots then we divide an axis into intervals.



For every each interval we need to take x which belongs to this interval e.g. (in I interval from infinity to one open brackets) and check the sign of every expression.

Then we write all equations for each interval.

<p><u>I</u> $\int x \in (-\infty, 1)$</p> $\begin{aligned} & -x+1-2x+4-x+3 > 10 \\ & -4x+8 > 10 \\ & -4x > 2 \\ & x < -\frac{1}{2} \end{aligned}$ <p><u>$x \in (-\infty, -\frac{1}{2})$</u></p>	<p><u>II</u> $\int x \in (1, 2)$</p> $\begin{aligned} & x-1-2x+4-x+3 > 10 \\ & -2x+6 > 10 \\ & -2x > 4 \\ & x < -2 \end{aligned}$ <p>↓ Doesn't belong to this interval</p>	<p><u>III</u> $\int x \in (2, 3)$</p> $\begin{aligned} & x-1+2x-4-x+3 > 10 \\ & 2x-2 > 10 \\ & 2x > 8 \\ & x > 4 \end{aligned}$ <p>↓ Doesn't belong to this interval</p>
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$$\text{IV } \begin{cases} x \in (-3, +\infty) \\ x-1+2x-4+x-3 > 10 \end{cases}$$

$$4x - 8 > 10$$

$$4x > 18$$

$$x > \frac{9}{2}$$

$$x \in \left(\frac{9}{2}, +\infty\right)$$

Thirdly, we need to take the solutions of all intervals.

We can notice that x belongs to two intervals

$$x \in \left(-\infty, -\frac{1}{2}\right) \cup \left(\frac{9}{2}, +\infty\right)$$