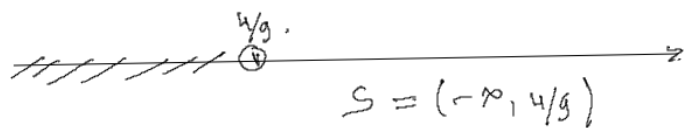


Linear inequality

$$ax < b \Leftrightarrow \begin{cases} x < \frac{b}{a} & \text{if } a > 0 \\ x > \frac{b}{a} & \text{if } a < 0 \\ 0 < b & \text{if } a = 0 \end{cases}$$

• Solve: $2 - 9x > -2$

$$\begin{aligned} -9x &> -2 - 2 \\ (-9)x &> -4 \\ \left(\frac{1}{-9}\right)(-9)x &< \left(\frac{1}{-9}\right)(-4) \\ x &< \frac{4}{9} \end{aligned}$$



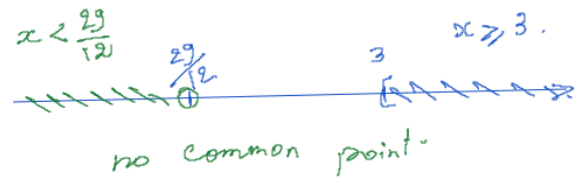
• Solve: $-\frac{9}{4} < 5 - 3x \leq -4$ ①

1st method: ① $\Rightarrow \begin{cases} 5 - 3x \leq -4 \\ \text{and} \\ -\frac{9}{4} < 5 - 3x \end{cases}$

2nd method ① $-\frac{9}{4} - 5 < 5 - 5 - 3x \leq -4 - 5$

$$-\frac{29}{4} < -3x \leq -9$$

$\Leftrightarrow \begin{cases} -3x \leq -9 \\ \text{and} \\ -\frac{29}{4} < -3x \end{cases} \Rightarrow \begin{cases} x \geq \frac{-9}{-3} = 3 \\ \text{and} \\ \frac{29}{12} > x \end{cases}$



• Solve $3(y-5) - 3(y+6) \leq 7$

~~$3y - 15 - 3y - 18 \leq 7$~~

$-33 \leq 7$

is always true.



$S = (-\infty, +\infty) = \mathbb{R}$