



Linear Inequations Ex 15.2 Q15

Consider the first inequation,

$$\begin{aligned}\frac{2x-3}{4} - 2 &\geq \frac{4x}{3} - 6 \\ \frac{2x-3-8}{4} &\geq \frac{4x-18}{3} \\ 3(2x-11) &\geq 4(4x-18) \\ 6x-33 &\geq 16x-72 \\ 6x-16x &\geq -72+33 \\ -10x &\geq -39 \\ x &\leq \frac{39}{10} \quad \dots(i)\end{aligned}$$

Consider the second inequation,

$$\begin{aligned}2(2x+3) &< 6(x-2)+10 \\ 4x+6 &< 6x-12+10 \\ 4x-6x &< -12-6+10 \\ -2x &< -8 \\ x &> 8 \quad \dots(ii)\end{aligned}$$

From (i) and (ii), there is no solution set of the simultaneous equations.

Linear Inequations Ex 15.2 Q16

Consider the first inequation,

$$\begin{aligned}\frac{7x-1}{2} &< -3 \\ 7x-1 &< -6 \\ 7x &< -6+1 \\ 7x &< -5 \\ x &< \frac{-5}{7} \quad \dots(i)\end{aligned}$$

Consider the second inequation,

$$\begin{aligned}\frac{3x+8}{5} + 11 &< 0 \\ \frac{3x+8+55}{5} &< 0 \\ \frac{3x+63}{5} &< \frac{0}{1} \\ 3x+63 &< 0 \\ 3x &< -63 \\ x &< -21 \quad \dots(ii)\end{aligned}$$

From (i) and (ii), $(-\infty, -21)$ is the solution set of the simultaneous equations.

Linear Inequations Ex 15.2 Q17

Consider the first inequation,

$$\frac{2x+1}{7x-1} > 5$$

$$\frac{2x+1}{7x-1} - 5 > 0$$

$$\frac{2x+1-5(7x-1)}{7x-1} > 0$$

$$2x+1-35x+5 > 0$$

$$-33x+6 > 0$$

$$-33x > -6$$

$$x < \frac{6}{33}, \quad x > \frac{1}{7} \quad \dots (i)$$

Consider the second inequation,

$$\frac{x+7}{x-8} > 2$$

$$\frac{x+7}{x-8} - 2 > 0$$

$$\frac{x+7-2(x-8)}{x-8} > 0$$

$$\frac{x+7-2x+16}{x-8} > 0$$

$$x > 8, \quad x < 23 \quad \dots (ii)$$

From (i) and (ii), there is no solution set of the simultaneous equations.

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