Linear Inequations Ex 15.2 Q15

Consider the first inequation,

$$\frac{2x-3}{4}-2 \geq \frac{4x}{3}-6$$

$$\frac{2x-3-8}{4} \geq \frac{4x-18}{3}$$

$$3(2x-11) \geq 4(4x-18)$$

$$6x-33 \geq 16x-72$$

$$6x-16x \geq -72+33$$

$$-10x \geq -39$$

$$x \leq \frac{39}{10} \qquad \ldots(i)$$

Consider the second inequation,

$$2(2x+3) < 6(x-2)+10$$

$$4x+6 < 6x-12+10$$

$$4x-6x < -12-6+10$$

$$-2x < -8$$

$$x > 8 \qquad \ldots(ii)$$

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

Linear Inequations Ex 15.2 Q16

Consider the first inequation,

$$\frac{7x-1}{2} < -3$$

$$7x-1 < -6$$

$$7x < -6+1$$

$$7x < -5$$

$$x < \frac{-5}{7} \qquad \ldots(i)$$

Consider the second inequation,

$$\frac{3x+8}{5}+11 < 0$$

$$\frac{3x+8+55}{5} < 0$$

$$\frac{3x+63}{5} < \frac{0}{1}$$

$$3x+63 < 0$$

$$3x < -63$$

$$x < -21 \qquad \ldots(ii)$$

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

Linear Inequations Ex 15.2 Q17

Consider the first inequation,

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

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

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

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

$$-33x+6 > 0$$

$$-33x > -6$$

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

Consider the second inequation,

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

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

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

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

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

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

********** END **********