Linear Inequations Ex 15.2 Q18

Consider the first inequation,

$$\frac{x}{2} < 0$$
$$x < 0 \quad \ldots(i)$$

Consider the second inequation,

$$\frac{-x}{2} < 3$$
$$-x < 6$$

$$x > -6 \ldots(ii)$$

From (i) and (ii), $(-6, 0)$ is the solution set of the simultaneous equations.

Linear Inequations Ex 15.2 Q19

Consider the first inequation,

$$10 \leq -5(x - 2)$$
$$2 \leq -(x - 2)$$
$$2 \leq -x + 2$$
$$2 - 2 \leq -x$$
$$0 \leq -x$$
$$x \leq 0 \qquad \ldots(i)$$

Consider the second inequation,

$$-5(x - 2) < 20$$
$$-5x + 10 < 20$$
$$-5x < 20 - 10$$
$$-5x < 10$$
$$-x < 2$$
$$x > -2 \qquad \ldots(ii)$$

From (i) and (ii), $(-2, 0)$ is the solution set of the simultaneous equations.

Linear Inequations Ex 15.2 Q20

Consider the first inequation,

$$-5 < 2x - 3$$
$$2x - 3 > -5$$
$$2x > -5 + 3$$
$$2x > -2$$
$$x > -1 \qquad \ldots(i)$$

Consider the second inequation,

$$2x - 3 < 5$$
$$2x < 5 + 3$$
$$2x < 8$$
$$x < 4 \qquad \ldots(ii)$$

From (i) and (ii), $(-1, 4)$ is the solution set of the simultaneous equations.

Linear Inequations Ex 15.2 Q21

$$\frac{4}{x+1} \le 3 \le \frac{6}{x+1}$$

$$\Rightarrow 4 \le 3(x+1) \le 6$$

$$\Rightarrow \frac{4}{3} \le (x+1) \le \frac{6}{3}$$

$$\Rightarrow \frac{4}{3} - 1 \le x \le 2 - 1$$

$$\Rightarrow \frac{1}{3} \le x \le 1$$

Solution set for given inequation is $\left[\frac{1}{3}, 1\right]$.

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