.

Linear Inequations Ex 15.1 Q1

$$\text{Now, } 12x < 50$$

$$\Rightarrow x < \frac{50}{12} = \frac{25}{6}$$

(i)

$$\text{Since } x \in R,\ x \in \left(-\infty, \frac{25}{6}\right)$$

(ii)

$$\text{Since } x \in Z, x \in \{\ldots,-3,-2,-1,0,1,2,3,4\}$$

(iii)

$$\text{Since } x \in N, x \in \{1,2,3,4\}$$

Linear Inequations Ex 15.1 Q2

$$\text{Now, } -4x > 30$$

$$\Rightarrow x < \frac{-30}{4} = \frac{-15}{2}$$

(i)

$$\text{If } x \in R,\ \text{then } x < \frac{-15}{2} \Rightarrow x \in \left(-\infty, -\frac{15}{2}\right)$$

(ii)

$$\text{If } x \in Z,\ \text{then } x < -\frac{15}{2} \Rightarrow x \in \{\ldots,-10,-9-8\}$$

(iii)

$$-4x > 30$$

$$\Rightarrow -x > \frac{30}{4}$$

$$\Rightarrow x < -\frac{30}{4}$$

As $x \in N$, so x can not be less than 1.

$\therefore$ The solution set of the inequality $-4x > 30$ is null set ϕ.

Linear Inequations Ex 15.1 Q3

Now,

$4x - 2 < 8$

$\Rightarrow 4x < 8 + 2$

$\Rightarrow 4x < 10$

$\Rightarrow x < \frac{10}{4} = \frac{5}{2}$

(i) If $x \in R$, then $x < \frac{5}{2} \Rightarrow x \in \left(-\infty, \frac{5}{2}\right)$

(ii) If $x \in Z$ then $x < \frac{5}{2} \Rightarrow x \in \{\ldots, -2, -1, 0, 1, 2\}$

(iii) If $x \in N$ then $x < \frac{5}{2} \Rightarrow x \in \{1, 2\}$

Linear Inequations Ex 15.1 Q4

$3x - 7 > x + 1$

$\Rightarrow 3x - x > 1 + 7$

$\Rightarrow 2x > 8$

$\Rightarrow x > \frac{8}{2} = 4$

$\Rightarrow x > 4$

$\therefore (4, \infty)$ is the solution set.

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