

## Solutions of Question on Linear Equations

$$\underline{1.} \quad \frac{112x}{5} \geq \frac{9-3x}{8} + \frac{3}{4}, \quad x \in \mathbb{N}$$

$$\Rightarrow \frac{112x}{5} \geq \frac{9-3x+6}{8}$$

$$\frac{112x}{5} \geq \frac{15-3x}{8}$$

$$\Rightarrow 896x \geq 75 - 15x$$

$$\Rightarrow 911x \geq 75$$

$$\Rightarrow x \geq \frac{75}{911}$$

$$\therefore x = 1, 2, 3, 4, \dots \quad (\because x \in \mathbb{N})$$



2.  $-\frac{1}{3} \leq \frac{3x-8}{6} < 1\frac{1}{6}, \quad x \in \mathbb{R}$

$$\Rightarrow -\frac{1}{3} \leq \frac{3x-8}{6} < \frac{7}{6}$$

$$\Rightarrow -2 \leq 3x-8 < 7 \quad \left\{ \text{multiplying by 6} \right\}$$

$$\Rightarrow -2+8 \leq 3x-8+8 < 7+8$$

$$\Rightarrow 6 \leq 3x < 15$$

$$\Rightarrow \frac{6}{3} \leq \frac{3x}{3} < \frac{15}{3} \quad \left\{ \text{dividing by 3} \right\}$$

$$\Rightarrow \boxed{2 \leq x < 5}$$



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