

2. Solve

$$(i) \frac{2x+1}{7x-1} > 5 \quad (ii) \frac{x+7}{x-8} > 2.$$

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

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

$$\Rightarrow \frac{2x+1 - 35x+5}{7x-1} > 0.$$

$$\Rightarrow \frac{-33x+6}{7x-1} > 0$$

$$\Rightarrow \frac{11x-2}{7x-1} < 0$$

$$\Rightarrow ((11x-2) < 0 \ \& \ (7x-1) > 0) \text{ or } ((11x-2) > 0 \ \& \ (7x-1) < 0)$$

$$\Rightarrow \left(\left(x < \frac{2}{11} \right) \ \& \ \left(x > \frac{1}{7} \right) \right) \text{ or } \left(\left(x > \frac{2}{11} \right) \ \& \ \left(x < \frac{1}{7} \right) \right)$$

$$\Rightarrow x \in \left(\frac{1}{7}, \frac{2}{11} \right) \quad (i)$$

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

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

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

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

$$\Rightarrow \frac{-x+23}{x-8} > 0$$

$$\Rightarrow \frac{x-23}{x-8} < 0$$

$$\Rightarrow ((x-23) < 0 \ \& \ (x-8) > 0) \text{ or } ((x-23) > 0 \ \& \ (x-8) < 0)$$

$$\Rightarrow ((x < 23) \ \& \ (x > 8)) \text{ or } ((x > 23) \ \& \ (x < 8))$$

$$\Rightarrow x \in (8, 23) \quad (ii)$$

From (i) & (ii), There is no common set of values of x .
So, The given system of equation has no solution.