the left (or the right) of a.

Example:

Show the graph of the solution of the inequality 5(x-3) > 2x + 9 on number line. Solution: 5(x-3) > 2x+9 \Rightarrow 5*x* - 15 > 2*x* + 9 $\Rightarrow 5x - 15 - 2x > 2x + 9 - 2x$ \Rightarrow 3*x* – 15 > 9 \Rightarrow 3*x* > 9 + 15 \Rightarrow 3*x* > 24 $\Rightarrow x > 8$ Thus, the solution of the given inequality can be represented on the number line as shown below.

8 2 3 4 5 6 7 9 10 11 0

- The solution set might be taken from real numbers or whole numbers or integers or any other set of numbers. The set from which the values of the variables (involved in the inequation) are chosen is called the **replacement set**. We may take any set as the replacement set. For example, N, Z, $\{-4, -3, -2\}$ can be taken as the replacement set.
- Linear inequalities in two variables and representing their solution graphically

Rules for solving an inequality:

- for solving an inequality:
 Equal numbers may be added to or put are from both sides of an inequality without affecting the size of t without affecting the sign of the nequality.
- Both sides of an inequality can be multipled with or divided by the same positive number. But View both sides are view in the with or divided by a negative number, the sign of mequality is reversed.

Example 1: Solve $3\left(\frac{3}{5}x + 4\right) \ge 2(x - 3)$.

Solution:

$$3\left(\frac{3}{5}x+4\right) \ge 2\left(x-3\right)$$

$$\Rightarrow 3\left(\frac{3x+20}{5}\right) \ge 2(x-3)$$

$$\Rightarrow 3(3x+20) \ge 10(x-3)$$

$$\Rightarrow 9x+60 \ge 10x-30$$

$$\Rightarrow 9x-10x \ge -30-60$$

$$\Rightarrow -x \ge -90$$

 $\Rightarrow x \leq 90$

 \therefore The solution set of the given inequality is (– ∞ , 90].