PERL EDUCATION

DPP

DAILY PRACTICE PAPER

LINEAR INEQUATIONS (IN ONE VARIABLE)

MATHEMATICS

10TH ICSE

1. If the replacement set is the set of natural numbers (N), find the solution set of :

   i. $3x + 4 < 16$

   ii. $8 - x \leq 4x - 2$.

2. If the replacement set is the set of whole numbers (W), find the solution set of :

   i. $5x + 4 \leq 24$

   ii. $4x - 2 < 2x + 10$.

3. If the replacement set is the set of integers, (I or Z), between -6 and 8, find the solution set of :

   i. $6x - 1 \geq 9 + x$

   ii. $15 - 3x > x - 3$.

4. If the replacement set is the set of real numbers (R), find the solution set of :

   i. $5 - 3x < 11$

   ii. $8 + 3x \geq 28 - 2x$.

5. Solve : $\frac{x}{2} - 5 \leq \frac{x}{3} - 4$, where x is a positive odd integer.

6. Solve the following inequation : $2y - 3 < y + 1 \leq 4y + 7$; if :

   y ∈ R (real numbers)

7. Given that x ∈ R, solve the following inequality and graph the solution on the number line : $-1 \leq 3 + 4x < 23$.

8. Simplify : $-\frac{1}{3} \leq \frac{x}{2} - 1\frac{1}{3} < \frac{1}{6}$: x ∈ R.

9. List the solution set of $50 - 3(2x - 5) < 25$, given that x ∈ W. Also, represent the solution set obtained on a number line.

10. Solve and graph the solution set of $3x + 6 \geq 9$ and $-5x > -15$; where x ∈ R.

11. Solve and graph the solution set of $-2 < 2x - 6$ or $-2x + 5 \geq 13$; where x ∈ R.

12. Given : P = { $x : 5 < 2x - 1 \leq 11$, $x \in R$ }

    Q = { $x : -1 \leq 3 + 4x < 23$, $x \in I$ }

    where R = {$real\ numbers$} and I = {$integers$}.

    Represent P and Q on two different number lines. Write down the elements of P ∩ Q.

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1. Solve : x + 2 > 9, x ∈ W.

2. Solve the inequality $4 \left(\frac{1}{2} - p\right) + 7 \geq 57$ over R and graph the solution set.

3. Solve the following inequation: $\frac{2x-3}{4} + 8 \geq 2 + \frac{4x}{3}$; $x \in R$.

4. Find the solution set of -3 < x - 2≤ 9 – 2 x ; x ∈ Z. Also graph the solution set.

5. Find the range of values of x, which satisfy the inequality: $\frac{1}{5} \leq \frac{x}{10} + 1 < \frac{2}{5}$; $x \in R$.

6. Solve and graph the solution set of
   i. 2x = 9 < 7 and 3x + 9 ≤25, x ∈ R ;
   ii. 3x - 2 > 19 or 3 – 2x ≥ - 7; x ∈ R.
   iii. {x : 4 < 3x - 2≤ 13, x ∈ R} and { x: - 2≤ 5 + 7x < 40, x ∈ Z}

7. Solve the following equations, write the solution set and represent it on the number line : $\frac{x}{3} \leq \frac{x}{2} - 1\frac{1}{3} < \frac{1}{6}, x \in R$

8. Solve the following equations, write the solution set and represent it on the number line : -3 (x-7)≥ 15 – 7x > $\frac{x+1}{3}$, $x \epsilon R$.

9. Write down the range of values of x (∈) for which both the inequations x > and -1 ≤ x ≤ 4 are true.

10. The diagram, given below, represents two inequations P and Q on real number lines :

    P =

    Q =

    (i) Write down P and Q in set builder notation.

    (ii) Represent each of the following sets on different number lines :

    (a) P ∪ Q   (b) P ∩ Q   (c) P - Q

    (d) Q - P   (e) P ∩ Q'   (f) P' ∩ Q.

11. Find three smallest consecutive whole numbers such that the difference between one-fourth of the largest and one-fifth of the smallest is at least 3.