ICSE Class 8 Maths Selina Solutions Chapter 15 Linear Inequations: ICSE Class 8 Maths Selina Solutions for Chapter 15, Linear Inequations help students understand how to solve inequalities.

These solutions explain each step clearly making it easy for students to learn how to solve linear inequations correctly. By following these solutions students will learn to represent solutions on a number line and understand the rules of inequalities.

These solutions match the ICSE curriculum helping students prepare well for their exams and gain confidence in solving linear inequations.

ICSE Class 8 Maths Selina Solutions Chapter 15 Linear Inequations Overview

The ICSE Class 8 Maths Selina Solutions for Chapter 15 Linear Inequations are provided by subject matter experts from Physics Wallah. These solutions provide a clear and comprehensive overview of linear inequations making it easier for students to understand and solve them.

Each step is explained in simple language helping students learn how to represent solutions on a number line and grasp the fundamental rules of inequalities.

By using these expert-prepared solutions, students can effectively prepare for their exams and confidently tackle linear inequations.

Linear Inequations

The ICSE Class 8 Maths Selina Solutions for Chapter 15, Linear Inequations provide a detailed approach to understanding and solving linear inequations.

Linear inequations are mathematical expressions involving inequalities (such as <, >, ≤, ≥) rather than equalities (=). These inequations are essential in representing and solving real-world problems where values are not fixed but instead fall within a range.

Key Concepts Covered

Understanding Inequalities:

- Introduction to the symbols of inequalities and their meanings.
- Differentiating between strict inequalities (>, <) and non-strict inequalities (≥, ≤).

Solving Linear Inequations:

- Techniques for solving linear inequations involving one variable.

- Applying the rules of transposition and balancing to isolate the variable.
- Understanding the impact of multiplying or dividing both sides of an inequality by a negative number, which reverses the inequality sign.

Graphical Representation:

- Plotting solutions on a number line.
- Using open and closed circles to represent strict and non-strict inequalities, respectively.
- Shading the appropriate region on the number line to indicate the solution set.

ICSE Class 8 Maths Selina Solutions Chapter 15 PDF

The ICSE Class 8 Maths Selina Solutions for Chapter 15 Linear Inequations are available in PDF format. These solutions provided by subject matter experts from Physics Wallah provide detailed explanations and step-by-step guidance to help students master linear inequations.

To access the detailed solutions and enhance your understanding of this chapter please click on the PDF link provided below.

ICSE Class 8 Maths Selina Solutions Chapter 15 PDF

ICSE Class 8 Maths Selina Solutions for Chapter 15 Linear Inequations

Below we have provided ICSE Class 8 Maths Selina Solutions Chapter 15 Linear Inequations for the ease of the students –

ICSE Class 8 Maths Selina Solutions for Chapter 15 Linear Inequations Exercise

Question 1.

If the replacement set is the set of natural numbers, solve.
(i) $x - 5 < 0$
(ii) $x + 1 < 7$
(iii) $3x - 4 > 6$
(iv) $4x + 1 > 17$

If the replacement set is the set of natural numbers, solve.

(i) $x - 5 < 0$

Solution:-

x – 5 < 0

Adding 5, x – 5 + 5 < 0 + 5…

x < 5

Required answer = {1, 2, 3, 4}

(ii) x + 1 < 7

Solution:-

Subtracting 1x + 1 ≤ 7 ⇒ x + 1 – 1 ≤ 7 – 1

x ≤ 6

Required answer = {1, 2, 3, 4, 5, 6}

(iii) 3x – 4 > 6

Solution:-

3x – 4 > 6

Adding 4, 3x – 4 + 4 > 6 + 4

3x > 10

Dividing by, 3, $\frac{3x}{3} > \frac{10}{3}\ x > \frac{10}{3}\ x > 3\frac{1}{3}$

Required answer = {4, 5, 6,…}

(iv) 4x + 1 > 17

Solution:-

4x + 1 ≥ 17

Subtracting, 4x + 1 – 1 ≥ 17 – 1

4x ≥ 16

Dividing by 4, 4x/4 ≥ (16/4)x ≥ 4

Required answer = {4, 5, 6,…}

Question 2.

If the replacement set = {-6, -3, 0, 3, 6, 9}; find the truth set of the following:
(i) 2x – 1 > 9
(ii) 3x + 7 < 1

If the replacement set = {-6, -3, 0, 3, 6, 9}; find the truth set of the following:

(i) 2x – 1 > 9

Solution:-

2x – 1 > 9

Adding 1, 2x – 1 + 1 > 9 + 1

2x >10

Dividing by 2, x > 5

Required answer = {6, 9}

(ii) 3x + 7 < 1

Solution:-

3x + 7 ≤ 1

Subtracting 7, 3x + 7 – 7 ≤ 1 – 7

3x ≤ -6

x ≤ -2

Required Answer = {-6, -3}

Question 3.

Solve 7 > 3x -8; x ∈ N

Solution:-

7 > 3x – 8

Subtracting 3x, 7 – 3x > 3x – 3x – 8

Subtracting 7, 7 – 7 – 3x > 3x – 3x – 8 – 7

-3x > -15

Dividing by -3, $x < 5$

Required Answer = {1, 2, 3, 4}

Note: Division by negative number reverses the inequality

Question 4

$-17 < 9y – 8; y \in Z$

Solution:-

$-17 < 9y – 8$

Adding 8, $– 17 + 8 < 9y – 8 + 8$

$– 9 < 9y$

Dividing by 9

$-1 < y$

Required Answer = {0, 1, 2, 3, 4 …. }

Question 5.

Solve $9x – 7 \leq 28 + 4x; x \in W$

Solution:-

$9x – 1 \leq 28 + 4x$

Subtracting 4x, $9x – 4x – 7 \leq 28 + 4x – 4x$

$5x – 7 \leq 28$

Adding 7, $5x – 7 + 7 \leq 28 + 7$

$5x \leq 35$

Dividing by 5, $x \leq 7$

Required answer = {0, 1, 2, 3, 4, 5, 6, 7}

Question 6.

Solve $2/3x + 8 < 12; x \in W$

Solution:-

$$\frac{2}{3}x + 8 < 12 \; \frac{2}{3}x + 8 - 8 < 12 - 8 \; \frac{2}{3}x < 4$$

Multiplying by 3/2, (2/3) x × (3/2) < 4 × (3/2)

∴ Required answer = {0, 1, 2, 3, 4, 5}

Question 7.

Solve − 5(x + 4) > 30; x ∈ Z

Solution:-

-5(x + 4) > 30

Dividing by -5, ((−5(x+4))/−5) < (30/−5)

Note: Division by a negative number reverses the equality

x + 4 < -6

x + 4 – 4 < – 6 – 4

x < – 10

∴ Required Answer = {-11, -12, -13, …}

Question 8.

Solve the inequation 8 – 2x > x – 5; x ∈ N

Solution:-

8 – 2x ≥ x – 5; x ∈ N

8 + 5 ≥ 2x + x

13 ≥ 3x ⇒ 3x ≤ 13

$$x \leq \frac{13}{3} = 4\frac{1}{3}$$

x = 1, 2, 3, 4 (x ∈ N)

Solution set = {1, 2, 3, 4}

Question 9.

Solve the inequality 18 -3 (2x – 5) > 12; x ∈ W.

Solution:-

18 – 3(2x – 5) > 12; x ∈ W

18 – 6x + 15 > 12

33 – 12 > 6x

21 > 6x

6x < 21 ⇒ x < 21/6 + 7/2 =3½

But x ∈ W, x = 0, 1, 2, 3

∴ Solution set = {0, 1, 2, 3}

Question 10.

Solve: ((2x+1)/3) + 15 < 17; x ∈ W

Solution:-

((2x+1)/3) + 15 ≤ 17; x ∈ W ((2x+1)/3) ≤ 17 – 15 = 2

2x + 1 ≤ 6 ⇒ 2x ≤ 5

x ≤ 5/2 = 2½

∴ x = 0, 1, 2

∴ Solution set is = {0, 1, 2}

Question 11.

Solve:- 3 + x < 2, x ∈ N

Solution:

-3 + x < 2, x ∈ N

x < 2 – (-3)

x < 2 + 3

x < 5

∴ x = 1, 2, 3, 4 (∵x ∈ N)

∴ Solution set = {1, 2, 3, 4}

Question 12.

Solve: 4x – 5 > 10 – x, x ∈ {0, 1, 2, 3, 4, 5, 6, 7}

Solution:

4x – 5 > 10 – x, x ∈ N

4x + x > 10 + 5

5x > 15

X > 15/5 = 3

∴x=4, 5, 6, 7

Solution set = {4, 5, 6, 7}

Question 13.

Solve: 15 – 2(2x – 1) < 15, x ∈ Z

Solution:

15 – 4x + 2 < 15

17 – 4x < 15

-4x < 15 – 17

-4x < -2

Dividing by -4, (−4/−4)x > −2/−4 = ½

∴x = 1, 2, 3, 4, 5,

∴ Solution set = {1, 2, 3, 4, 5,…}

Question 14.

Solve: (2x + 3)/5 > (4x−1)/2, x ∈ W

Solution:-

$(2x + 3)/5 > (4x - 1)/2, x \in W$

$2(2x + 3) > 5(4x - 1)$

$4x + 6 > 20x - 5$

$4x - 20x > -5 - 6$

$-16x > -11$

Dividing by -16, $x < (-11/-16)$ $x < (11/16)$

$\therefore x = 0$

$\therefore$ Solution set = {0}

Solve and graph the solution set on a number line:

Question 15.

$x - 5 < -2; x \in N$

Solution:-

$x - 5 < -2$

Adding 5 to both sides, $x - 5 + 5 < -2 + 5$

$x < 3$

$\therefore$ The required graph is

Benefits of ICSE Class 8 Maths Selina Solutions Chapter 15 Linear Inequations

- **Comprehensive Understanding**: The solutions provide a detailed explanation of linear inequations helping students grasp the fundamental concepts and principles behind inequalities. This ensures a strong foundation in the topic.

- **Step-by-Step Solutions**: Each problem is solved in a step-by-step manner, making it easier for students to follow the logic and methodology used. This approach helps in building problem-solving skills and reduces the chances of errors.
- **Enhanced Problem-Solving Skills**: By working through a variety of problems, students can develop and hone their problem-solving abilities. The solutions include different types of linear inequations, ensuring a well-rounded practice experience.
- **Confidence Building**: With clear and accurate solutions, students can check their work and understand their mistakes.
- **Exam Preparation**: The solutions are aligned with the ICSE curriculum and exam pattern, making them an excellent resource for exam preparation. Practicing these problems ensures that students are well-prepared to tackle similar questions in their exams.