ICSE Class 8 Maths Selina Solutions Chapter 14: ICSE Class 8 Maths Selina Solutions for Chapter 14, "Linear Equations in One Variable," provide detailed explanations and solutions to problems involving linear equations.

This chapter focuses on understanding and solving equations where there is only one variable. The solutions guide students through each step of the process, from setting up the equation to finding the value of the variable.

ICSE Class 8 Maths Selina Solutions Chapter 14 Linear Equations in One Variable Overview

ICSE Class 8 Maths Selina Solutions for Chapter 14, "Linear Equations in One Variable," are prepared by subject experts from Physics Wallah. These solutions give clear, step-by-step explanations for solving equations with one variable.

These solutions are a great help for students, providing easy-to-follow instructions and lots of practice. This makes it easier to learn the basics of linear equations, which is important for more advanced math studies.

ICSE Class 8 Maths Selina Solutions Chapter 14 Linear Equations in One Variable PDF

The PDF link provided below contains the ICSE Class 8 Maths Selina Solutions for Chapter 14, "Linear Equations in One Variable."

By following these solutions, students can easily understand how to set up and solve these equations, making it a valuable resource for exam preparation and strengthening their math skills. Download the PDF to access comprehensive guidance and practice problems for mastering linear equations.

ICSE Class 8 Maths Selina Solutions Chapter 14 Linear Equations in One Variable PDF

Linear Equations in One Variable

Linear equations in one variable are algebraic equations that involve a single variable, usually denoted by xxx, and can be written in the form $ax+b=0ax + b = 0ax+b=0$, where aaa and bbb are constants. The goal is to find the value of xxx that makes the equation true. Here's a detailed explanation with examples:

Understanding Linear Equations in One Variable

- **Form**: The general form is ax+b=0ax + b = 0ax+b=0.
- **Goal**: Solve for xxx by isolating it on one side of the equation.

Steps to Solve Linear Equations

1. **Simplify Both Sides**: Combine like terms on both sides of the equation if necessary.
2. **Isolate the Variable**: Move the terms involving the variable to one side and constant terms to the other side.
3. **Solve for the Variable**: Divide or multiply to solve for the variable.

Example 1: Solving a Simple Linear Equation

3x+5=113x + 5 = 113x+5=11

Answer Step-by-Step Solution:

1. Subtract 5 from both sides: 3x+5−5=11−53x + 5 - 5 = 11 - 53x+5−5=11−5 3x=63x = 63x=6
2. Divide by 3: x=63x = \frac{6}{3}x=36 x=2x = 2x=2

ICSE Class 8 Maths Selina Solutions for Chapter 14 Linear Equations in One Variable

ICSE Class 8 Maths Selina Solutions for Chapter 14 Linear Equations in One Variable Exercise 1

Below we have provided ICSE Class 8 Maths Selina Solutions Chapter 14 Linear Equations in One Variable for the ease of the students –

Solve the following equations:

Question 1

20 = 6+2x

Solution:-

Simplifying we get 20 = 6 + 2x

20 – 6 = 2x

14 = 2x

7 = x

x = 7

Question 2

15 + x = 5x + 3

Solution:-

Simplifying we get 15 – 3 = 5x – x

12 = 4x

3 = x

x = 3

Question 3

(3x+2)/(x−6) =−7

Solution:-

By cross multiplying 3x + 2 = – 7(x-6)

3x + 2 = -7x + 42

3x + 7x = 42 – 2

10x = 40

x = 4

Question 4

3a – = 2 (4 – a)

Solution:-

3a – 4 = 8 – 2a

3a + 2a = 8 + 4

5a = 12

a = 2.4

Question 5

3(b – 4) = 2 (4 – b)

Solution:-

3b – 12 = 8 – 2b

3b + 2b = 8 + 12

5b = 20

b = 20/5

b = 4

Question 6

(x+2)/9 = (x+4)/11

Solution:-

By cross multiplying 11(x+2) = 9(x+4)

11x + 22 = 9x + 36

11x – 9x = 36 – 22

2x =14

x = 14/2

⇒ x = 7

Question 7

(x − 8)/5 = (x − 12)/9

Solution:-

By cross multiplying 9(x – 8) = x(x – 12)

9x – 72 = 5x – 60

9x – 5= -60 + 72

4x = 12

x = 12/4

x = 3

Question 8

5(8x + 3) = 9(4x + 7)

Solution:-

40x + 15 = 36x + 63

40x – 36x = 63 – 15

4x = 48

x = 48/4

x = 12

Question 9

3(x + 1) = 12 + 4 (x – 1)

Solution:-

3(x+1) = 12 + 4(x-1)

3x + 3 = 12 + 4x – 4

3x – 4x = 12 – 4 – 3

-x = 5 ⇒ x = – 5

Question 10

3x/4− ¼ (x − 20) = x/4 +32

Solution:-

3x/4 – x/4 + 5 = x/4 + 32

3x/4 – x/4 –x/4 = 32 − 5

(3x – x – x)/4 = 27

x/4 = 27

x = 27 × 4

x = 108

Question 11.

$$3a - \frac{1}{5} = \frac{a}{5} + 5\frac{2}{5}$$

Solution:-

$$3a - \frac{a}{5} = 5\frac{2}{5} + \frac{1}{5}$$

3a – a/5 = 27/5 + 1/5

(Multiplying each term by 5)

⇒ (3a × 5) – (a/5) × 5 = (27/5) × 5 + (1/5) × 5

15a – a = 27 + 1

14a = 28

a = 28/14

a = 2

Question 12.

x/3 −2½ = 4x/9 − 2x/3

Solution:-

x/3 – 5/2 = 4x/9 − 2x/3

Since, L.C.M. of denominators 3, 2, 9 and 3=18

[Multiplying each term by 18] ⇒ (x/3) × 18 – (5/2) × 18 = (4x/9) × 18 – (2x/3) × 18

6x -45 = 8x – 12x

6x + 12x – 8x = 45

18x – 8x = 45

10x = 45

x = 45/10

x = 4·5

Question 13:

(4(y + 2))/5 = 7 + 5y/13

Solution:-

(4y + 8)/5 = 7 + 5y/13

(4y + 8)/5 = (91 + 5y)/13

(By cross multiplying)

13(4y + 8) = 5(91 + 5y)

52y + 104 = 455 + 25y

52y – 25y = 455 – 104

27y = 351

y = 351/27

y = 13

Question 14.

(a + 5)/6 – (a + 1)/9 = (a + 3)/4

Solution:-

Since, L.C.M. of denominators 6, 9 and 4=36

Multiplying each term by 36 ⇒ ((a + 5)/6) × 36 – ((a + 1)/9) × 36 = ((a + 3)/4) × 36

6(a + 5) – 4(a + 1) = 9(a + 3)

6a + 30 – 4a – 4 = 9a + 27

6a – 4a – 9a = 27 -30 + 4

6a – 13a =1

-7a = 1

a = −1/7

Question 15:

(2x – 13)/5 – (x − 3)/11 = (x – 9)/5 + 1

Solution:-

(2x – 13)/5 – (x – 3)/11 = (x – 9)/5 + 11

Since, L.C.M. of denominators 5, 11, 5 and 1=55

∴((2x − 13)/5) × 55 – ((x – 3)/11) × 55 = ((x – 9)/5) × 55 + (1/1) × 55

11(2x – 13) – 5(x – 3) = 11 (x – 9) + 55

22x – 143 – 5x + 15 = 71x – 99 + 55

22x – 5x – 11x = -99 + 55 + 143 – 15

6x = 198 – 114

6x = 84

x = 84/6

x = 14

Benefits of ICSE Class 8 Maths Selina Solutions for Chapter 14 Linear Equations in One Variable

- **Clear Explanations**: The solutions provide detailed, step-by-step explanations for solving linear equations, making it easier for students to understand the process.
- **Conceptual Understanding**: These solutions help students grasp the fundamental concepts of linear equations, such as isolating the variable and balancing both sides of the equation.
- **Problem-Solving Skills**: Regular practice with these solutions enhances students' problem-solving skills, enabling them to tackle various types of linear equations with confidence.
- **Exam Preparation**: The solutions are aligned with the ICSE curriculum, helping students prepare effectively for exams by practicing similar types of questions they might encounter.
- **Foundation for Advanced Topics**: Mastering linear equations in one variable lays a strong foundation for more advanced mathematical topics, such as quadratic equations and algebraic expressions.
- **Self-Study Aid**: The solutions are a valuable resource for self-study, allowing students to review and practice at their own pace, reinforcing their learning outside the classroom.
- **Error Correction**: By comparing their answers with the provided solutions, students can identify and correct their mistakes, leading to better learning and retention.