RS Aggarwal Solutions for Class 8 Maths Chapter 8 Exercise 8.1: The Physics Wallah academic team has produced a comprehensive solution for Chapter 8's Linear Equations in the RS Aggarwal class 8 textbook. The RS Aggarwal class 8 solution for chapter 8 Linear Equations Exercise-8A is uploaded for reference only; do not copy the solutions.

Before going through the solution of chapter 8 Linear Equations Exercise-8A, one must have a clear understanding of the chapter 8 Linear Equations. Therefore, read the theory of chapter 8 Linear Equations and then try to solve all numerical of exercise-8A.

RS Aggarwal Solutions for Class 8 Maths Chapter 8 Exercise 8.1 Linear Equations Overview

RS Aggarwal Solutions for Class 8 Maths Chapter 8, Exercise 8.1, on Linear Equations, provides a comprehensive guide to understanding and solving linear equations in one variable. This exercise focuses on introducing students to the basic concepts of linear equations, emphasizing the balance method to isolate the variable and find its value. The problems in this exercise range from simple equations to slightly more complex ones that require multiple steps to solve.

Each solution is presented with clear step-by-step explanations, helping students grasp the logic and techniques needed to manipulate equations effectively. The exercise encourages students to practice forming equations from given statements, thereby enhancing their analytical and reasoning skills. This practice is crucial in developing a foundational understanding of algebra, which is vital for more advanced mathematical concepts.

What are Linear Equations?

An equation with the form ax+b = 0, where a and b are two integers and x is a variable with just one solution, is known as a linear equation in one variable. For instance, the linear equation 2x+3=8 has only one variable. As a result, there is only one solution to this equation, which is x = 5/2. In contrast, there are two solutions to a linear equation in two variables.

Standard Form of Linear Equations in One Variable

The standard form of linear equations in one variable is represented as:

ax+ b=0

RS Aggarwal Solutions for Class 8 Maths Chapter 8 Exercise 8.1 (Ex 8A)

Below we have provided RS Aggarwal Solutions for Class 8 Maths Chapter 8 Exercise 8.1 Linear Equations -

Solve:

Question 1. 8x + 3 = 27 + 2x

⇒ 8x – 2x = 27 – 3

⇒ 6x = 24

⇒ x = 4

Question 2. 5x + 7 = 2x – 8

⇒ 5x – 2x = – 8 – 7

⇒ 3x = – 15

⇒ x = – 5

Question 3. 2z – 1 = 14 – z

⇒ 2z + z = 14 + 1

⇒ 3x = 15

⇒ z = 5

Question 4. 9x + 5 = 4(x – 2) + 8

⇒ 9x + 5 = 4x – 8 + 8

⇒ 9x – 4x = – 5

⇒ 5x = – 5

⇒ x = -1

Question 5.

$$(5)\ \frac{7y}{5} = y - 4$$

⇒ 7y = 5y – 20

⇒ 7y – 5y = – 20

⇒ 2y = – 20

⇒ y = – 10

Question 6.

$$(6)\ 3x + \frac{2}{3} = 2x + 1$$

$$\Rightarrow \frac{9x+2}{3} = 2x + 1$$

$$\Rightarrow 9x + 2 = 6x + 3$$

$$\Rightarrow 9x - 6x = 3 - 2$$

$$\Rightarrow 3x = 1$$

$$\Rightarrow x = \frac{1}{3}$$

Question 7. 15(y – 4) – 2(y – 9) + 5(y + 6) = 0

⇒ 15y – 60 – 2y + 18 + 5y + 30 = 0

⇒ 18y – 60 + 48 = 0

⇒ 18y – 12 = 0

⇒ 18y = 12

$$\Rightarrow y = \frac{12}{18} = \frac{2}{3}$$

Question 8. 3(5x – 7) – 2(9x – 11) = 4(8x – 13) – 17

⇒ 15x – 21 – 18x + 22 = 32x – 52 – 17

⇒ – 3x + 1 = 32x – 69

⇒ – 3x – 32x = – 69 – 1

⇒ – 35x = – 70

⇒ x = 2

Question 9.

$$(9)\ \frac{x-5}{2} - \frac{x-3}{5} = \frac{1}{2}$$

$$\Rightarrow \frac{5x-25-2x+6}{10} = \frac{1}{2}$$

$$\Rightarrow \frac{3x-19}{10} = \frac{1}{2}$$

$$\Rightarrow 6x - 38 = 10$$

$$\Rightarrow 6x = 10 + 38$$

$$\Rightarrow 6x = 48$$

$$\Rightarrow x = 8$$

Question 10.

$$(10)\ \frac{3t-2}{4} - \frac{2t+3}{3} = \frac{2}{3} - t$$

$$\Rightarrow \frac{9t-6-8t-12}{12} = \frac{2-3t}{3}$$

$$\Rightarrow \frac{t-18}{4} = 2 - 3t$$

⇒ t – 18 = 8 – 12t

⇒ t + 12t = 8 + 18

⇒ 13t = 26

⇒ t = 2

Question 11.

$$(11)\ \frac{2x+7}{5} - \frac{3x+11}{2} = \frac{2x+8}{3} - 5$$

$$\Rightarrow \frac{4x+14-15x-55}{10} = \frac{2x+8-15}{3}$$

$$\Rightarrow \frac{-11x-41}{10} = \frac{2x-7}{3}$$

$$\Rightarrow -33x - 123 = 20x - 70$$

$$\Rightarrow -33x - 20x = -70 + 123$$

$$\Rightarrow -53x = 53$$

$$\Rightarrow x = -1$$

Question 12.

$$(12)\ \frac{5x-4}{6} = 4x + 1 - \frac{3x+10}{2}$$

$$\Rightarrow \frac{5x-4}{6} = \frac{8x+2-3x-10}{2}$$

$$\Rightarrow \frac{5x-4}{3} = 5x - 8$$

$$\Rightarrow 5x - 4 = 15x - 24$$

$$\Rightarrow 5x - 15x = -24 + 4$$

$$\Rightarrow -10x = -20$$

$$\Rightarrow x = 2$$

Question 13.

$$(13)\ 5x - \frac{1}{3}(x+1) = 6\left(x + \frac{1}{30}\right)$$

$$\Rightarrow 5x - \frac{x+1}{3} = 6x + \frac{6}{30}$$

$$\Rightarrow \frac{15x-x-1}{3} = 6x + \frac{1}{5}$$

$$\Rightarrow \frac{14x-1}{3} = \frac{30x+1}{5}$$

$$\Rightarrow 70x - 5 = 90x + 3$$

$$\Rightarrow 70x - 90x = 3 + 5$$

$$\Rightarrow -20x = 8$$

$$\Rightarrow x = -\frac{8}{20} = -\frac{2}{5}$$

Question 14.

$$(14)\ 4 - \frac{2(z-4)}{3} = \frac{1}{2}(2z + 5)$$

$$\Rightarrow \frac{12-2z+8}{3} = \frac{2z+5}{2}$$

$$\Rightarrow 40 - 4z = 6z + 15$$

$$\Rightarrow -4z - 6z = 15 - 40$$

$$\Rightarrow -10z = -25$$

$$\Rightarrow 2z = 5$$

$$\Rightarrow z = \frac{5}{2}$$

Question 15.

$3(y-5)/4-4y=3-(y\ 3)/2$

Solution:

$3(y-5)/4-4y=3-(y\ 3)/2$

Multiplying by 4, the L.C.M. of 4 and 2

$$\frac{3(y-5)}{4}\times 4 - 4y\times 4$$

$$= 3\times 4 - \frac{y-3}{2}\times 4$$

$$\Rightarrow 3(y-5) - 16y = 12 - 2(y-3)$$
$$\Rightarrow 3y - 15 - 16y = 12 - 2y + 6$$
$$\Rightarrow 3y - 16y + 2y = 12 + 6 + 15$$
$$\Rightarrow 5y - 16y = 18 + 15$$
$$\Rightarrow -11y = 33$$
$$\Rightarrow y = \frac{33}{-11} = -3$$

Hence $y = -3$ **Ans.**

Question 16.

8x - 3 / 3x = 2

Solution:

By cross multiplication,
8x – 3 = 6x
= 8x – 6x = 3
= 2x = 3
= x = 3/2
x = 1.5

Question 17.

9x/ 7 - 6x = 15

Solution:

$9x/7 - 6x = 15$
By cross multiplication,
9x = 105 – 90x
= 9x + 90x = 105

=99x = 105
=x = 105/99= 35/33
x = 35/33

Question 18.

3x/5x+2 = -4

$\frac{3x}{5x+2} = -4$
By cross multiplication,
3x × 1 = – 4×(5x + 2)
= 3x = – 20x – 8
= 3x + 20x = – 8
= 23x = – 8
= x = -8/23
Hence x = -8/23

Question 19.

6y-5/2y = 7/9

Solution:

$\frac{6y-5}{2y} = \frac{7}{9}$
By cross multiplication,
9(6y – 5) = 7 × 2y
= 54y – 45 = 14y
= 54y – 14y = 45
= 40y = 45
= y = 45/40= 9/8
Hence y = 9/8

Question 20.

2-9z/17-4z = 4/5

Solution:

$2-9z/17-4z=4/5$

By cross multiplication,

$5(2-9z) = 4(17-4z)$

$= 10 - 45z = 68 - 16z$

$= -45z + 16z = 68 - 10$

$= -29z = 58$

$= z = 58/-29 = -2$

Hence $z = -2$ Ans.

Question 21.

4x+7/9-3x = 1/4

Solution:

$4x+7/9-3x=1/4$

By cross multiplication,

$4(4x + 7) = 1(9 - 3x)$

$= 16x + 28 = 9 - 3x$

$= 16x + 3x = 9 - 28$

$= 19x = -19$

$= x = -19/19 = -1$

Hence $x = -1$ Ans.

Question 22.

7y+4/y+2 = -4/3

Solution:

$7y+4/y+2=-4/3$

By cross multiplication,

$3(7y + 4) = -4(y + 2)$

$= 21y + 12 = -4y - 8$

$=21y + 4y = -8 - 12$

$=25y = -20$

$=y = -20/25=-4/5$

$y = -4/5$

Question 23.

$15(2-y)-5(y+6)/1-3y=10$

Solution:

$15(2-y)-5(y+6)/1-3y=10$

By cross multiplication,

$15(2-y)-5(y+6)=10(1-3y)$

$=30-15y-5y-30=10-30y$

$=-15y-5y+30y=10-30+30$

$=30y-20y=10$

$=10y=10$

$y=10/10=1$

Hence $y=1$ Ans.

Question 24.

$2x-(7-5x)/9x-(3+4x)=7/6$

Solution:

$2x-(7-5x)/9x-(3+4x)=7/6$

$$\Rightarrow \frac{2x-7+5x}{9x-3-4x}=\frac{7}{6} \Rightarrow \frac{7x-7}{5x-3}=\frac{7}{6}$$

By cross multiplication,

$6(7x-7)=7(5x-3)$

$\Rightarrow 42x-42=35x-21$

$42x-35x=-21+42$

$$\Rightarrow 7x=21 \Rightarrow x=\frac{21}{7}=3$$

Hence $x=3$ **Ans.**

Question 25.

m -(m-1)/2=1-(m-2)/3

Solution:

$m-(m-1)/2=1-(m-2)/3$

$$\frac{6m-3(m-1)=6-2(m-2)}{6}$$

LCM of 2, 3 = 6

$6m - 3m + 3 = 6 - 2m + 4$

$\Rightarrow 6m - 3m + 2m = 6 + 4 - 3$

$$\Rightarrow 5m = 7 \Rightarrow m = \frac{7}{5}$$

$$\therefore m = \frac{7}{5}$$

Question 26.

$3x+5/4x+2=3x+4/4x+7$

Solution:

$3x+5/4x+2=3x+4/4x+7$

By cross multiplication,

$(3x + 5)(4x + 7) = (3x + 4)(4x + 2)$

$= 12x^2 + 21x + 20x + 35$

$= 12x^2 + 6x + 16x + 8$

$\Rightarrow 12x^2 + 21x + 20x - 12x^2 - 6x - 16x$

$= 8 - 35$

$\Rightarrow 41x - 22x = -27 \Rightarrow 19x = -27$

$$\Rightarrow x = \frac{-27}{19}$$

Hence $x = \frac{-27}{19}$ **Ans.**

Question 27.

$9x-7/3x+5=3x-4/x+6$

Solution:

$9x-7/3x+5=3x-4/x+6$

By cross multiplication,

$(9x - 7)(x + 6) = (3x - 4)(3x + 5)$

$9x^2 + 54x - 7x - 42$

$= 9x^2 + 15x - 12x - 20$

$\Rightarrow 9x^2 + 54x - 7x - 9x^2 - 15x + 12x$

$= -20 + 42$

$\Rightarrow 66x - 22x = 22 \Rightarrow 44x = 22$

$\Rightarrow x = \frac{22}{44} = \frac{1}{2}$

Hence $x = \frac{1}{2}$ **Ans.**

Question 28.

$2 - 7x/1 - 5x = 3 + 7x/4 + 5x$

Solution:

$2 - 7x/1 - 5x = 3 + 7x/4 + 5x$

By cross multiplication,

$(2 - 7x)(4 + 5x) = (3 + 7x)(1 - 5x)$

$\Rightarrow 8 + 10x - 28x - 35x^2$

$= 3 - 15x + 7x - 35x^2$

$= 10x - 28x - 35x^2 + 35x^2 + 15x - 7x$

$= 3 - 8$

$\Rightarrow 25x - 35x = -5 \Rightarrow -10x = -5$

$\Rightarrow x = \frac{-5}{-10} = \frac{1}{2}$

Hence $x = \frac{1}{2}$ **Ans.**

Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 8 Exercise 8.1

The RS Aggarwal Solutions for Class 8 Maths Chapter 8, Exercise 8.1, on Linear Equations, offers several benefits for students. Here are some of the key advantages:

Comprehensive Coverage:

The solutions provide detailed explanations and step-by-step guidance for each problem, ensuring that students understand the concepts and methods thoroughly.

Clarity and Simplicity:

The solutions are presented in a simple and clear manner, making it easier for students to grasp complex concepts related to linear equations.

Practice and Revision:

By solving these exercises, students get ample practice, which helps in reinforcing their understanding and preparing them for exams.

Conceptual Understanding:

The solutions focus on building a strong conceptual foundation by explaining the rationale behind each step, which is crucial for solving linear equations.

Variety of Problems:

The exercise includes a wide range of problems, from basic to advanced, allowing students to test their skills and improve their problem-solving abilities.

Error Identification:

Students can identify and correct their mistakes by comparing their solutions with the provided ones, leading to better learning and retention.