RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1: Students can refer to RS Aggarwal Class 8 Chapter 1 Exercise 1A Solution to grasp the idea of this particular topic right away. The entire RS Aggarwal Solutions Class 8 Math ex 1A practice has been meticulously prepared for the students by experts.

In this chapter, the fundamental ideas of rational numbers and their various characteristics are thoroughly covered. Through the practice of RS Aggarwal Maths Class 8 Exercise 1A, students will develop their confidence in their ability to solve mathematical problems during exams. Students should solve the problems in the RS Aggarwal textbook by according to the syllabus and instructions.

RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1 Rational Numbers Overview

Chapter 1 of the RS Aggarwal Solutions for Class 8 Maths focuses on Rational Numbers. Exercise 1.1 delves into the concept of rational numbers, where p and q are integers and q is not zero. This exercise aims to help students identify rational numbers and understand their properties thoroughly.

The problems in this exercise guide students through various operations involving rational numbers, including addition, subtraction, multiplication, and division. It also emphasizes the importance of simplifying rational numbers and finding their equivalent forms. Students learn how to perform these operations step-by-step, which helps in building a strong foundational knowledge.

Additionally, Exercise 1.1 covers topics like the representation of rational numbers on the number line, comparing and ordering them, and finding rational numbers between two given numbers. These skills are essential as they form the basis for more complex mathematical concepts encountered in higher classes.

By working through this exercise, students enhance their problem-solving abilities and gain confidence in handling rational numbers. The detailed solutions provided in the RS Aggarwal textbook offer clear explanations, making it easier for students to grasp the concepts and apply them effectively in various mathematical scenarios.

What are Rational Numbers?

Rational numbers are those that may be stated as a ratio between two integers in the number system. If the rational number is an integer, they can also be the quotient of the ratio. A non-zero integer q must exist if the rational number is represented by the ratio p/q.

Each and every integer is a rational number because the denominator can be 1. Class 8 covers all the ideas related to rational numbers; the arithmetic operations and features of rational numbers are presented in detail.

RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1

Below we have provided RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1 Rational Numbers -

(1) Express (-3)/5 as a rational number with denominator

(i) $20 = \frac{(-3)\times 4}{5\times 4} = \frac{-12}{20}$

(ii) $-30 = \frac{(-3)\times(-6)}{5\times(-6)} = \frac{18}{-30}$

(iii) $35 = \frac{(-3)\times 7}{5\times 7} = \frac{-21}{35}$

(iv) $-40 = \frac{(-3)\times(-8)}{5\times(-8)} = \frac{24}{-40}$

(2) Express (-42)/98 as a rational number with denominator 7.

Ans: $\frac{(-42)\div 14}{98\div 14} = \frac{-3}{7}$

(3) Express (-48)/60 as rational number with denominator 5.

Ans: $\frac{(-48)\div 12}{60\div 12}=\frac{-4}{5}$

(4) Express each of the following rational numbers in standard form:

(i) $\frac{-12}{30}=\frac{(-12)\div 6}{30\div 6}=\frac{-2}{5}$

(ii) $\frac{-14}{49}=\frac{(-14)\div 7}{49\div 7}=\frac{-2}{7}$

(iii) $\frac{24}{-64}=\frac{24\times(-1)}{(-64)\times(-1)}=\frac{(-24)\div 8}{64\div 8}=\frac{-3}{8}$

(iv) $\frac{-36}{-63}=\frac{(-36)\times(-1)}{(-63)\times(-1)}=\frac{36\div 9}{63\div 9}=\frac{4}{9}$

(5) Which of the two rational numbers is greater in the given pair?

(i) $\frac{3}{8}$ or 0

Ans: We know that every positive rational number is greater than 0. So, $\frac{3}{8}$ is greater.

(ii) $\frac{-2}{9}$ or 0

Ans: We know that every negative rational number is less than 0. So, $\frac{-2}{9}$ is less than 0.

(iii) $\frac{-3}{4}$ or $\frac{1}{4}$

Solution: Clearly, 1 > (-3).

Hence, $\frac{1}{4} > \frac{-3}{4}$

(iv) $\frac{-5}{7}$ or $\frac{-4}{7}$

Solution: Clearly, (-4) > (-5)

Hence, $\frac{-4}{7} > \frac{-5}{7}$

(v) $\frac{2}{3}$ or $\frac{3}{4}$

Solution: LCM of 3 and 4 = 12

$\therefore \frac{2}{3} = \frac{2\times4}{3\times4} = \frac{8}{12}$ and $\frac{3}{4} = \frac{3\times3}{4\times3} = \frac{9}{12}$

Clearly, 9 > 8

Hence, $\frac{3}{4} > \frac{2}{3}$

(vi) $\frac{-1}{2}$ or -1

Solution: LCM of 2 and 1 = 2

$\therefore \frac{-1}{1} = \frac{(-1)\times2}{1\times2} = \frac{-2}{2}$ and $\frac{-1}{2}$

Clearly, (-1) > (-2)

Hence, $\frac{-1}{2} > (-1)$

(6) Which of the two rational numbers is greater in the given pair?

(i) $\frac{-4}{3}$ or $\frac{-8}{7}$

Solution: LCM of 3 and 7 = 21

$\therefore \frac{(-4)\times 7}{3\times 7} = \frac{-28}{21}$ and $\frac{-8\times 3}{7\times 3} = \frac{-24}{21}$

Clearly, (-28) < (-24)

Hence, $\frac{-4}{3} < \frac{-8}{7}$

(ii) $\frac{7}{-9}$ or $\frac{-5}{8}$

Solution: Write the given number with positive denominator.

$\frac{7}{-9} = \frac{7\times(-1)}{(-9)\times(-1)} = \frac{-7}{9}$

LCM of 9 and 8 = 72

$\therefore \frac{-7}{9} = \frac{(-7)\times 8}{9\times 8} = \frac{-56}{72}$

$\frac{-5}{8} = \frac{(-5)\times 9}{8\times 9} = \frac{-45}{72}$

Clearly, (-45) > (-56)

Hence, $\frac{7}{-9} < \frac{-5}{8}$

(iii) $\frac{-1}{3}$ or $\frac{4}{-5}$

Solution: Write the given number with positive denominator.

$$\frac{4}{-5} = \frac{4\times(-1)}{(-5)\times(-1)} = \frac{-4}{5}$$

LCM of 3 and 5 = 15

$$\therefore \frac{-1}{3} = \frac{(-1)\times5}{3\times5} = \frac{-5}{15}$$

$$\frac{-4}{5} = \frac{(-4)\times3}{5\times15} = \frac{-12}{15}$$

Clearly, (-5) > (-12)

Hence, $\frac{-1}{3} > \frac{4}{-5}$

(iv) $\frac{9}{-13}$ or $\frac{7}{-12}$

Solution: Write the given numbers with positive denominator.

$$\frac{9}{-13} = \frac{9\times(-1)}{-13\times(-1)} = \frac{-9}{13}$$

$$\frac{7}{-12} = \frac{7\times(-1)}{-12\times(-1)} = \frac{-7}{12}$$

LCM of 13 and 12 = 156

$$\therefore \frac{-9\times12}{13\times12} = \frac{-108}{156}$$

$$\frac{-7\times13}{12\times13} = \frac{-91}{156}$$

Clearly, (-91) > (-108)

Hence, $\frac{7}{-12} > \frac{9}{-13}$

(v) $\frac{4}{-5}$ or $\frac{-7}{10}$

Solution: Write the given number with positive denominator.

$$\frac{4}{-5} = \frac{4\times(-1)}{-5\times(-1)} = \frac{-4}{5}$$

LCM of 5 and 10 = 10

$$\therefore \frac{-4\times2}{5\times2} = \frac{-8}{10} \text{ and } \frac{-7}{10}$$

Clearly, (-7) > (-8)

Hence, $\frac{-7}{10} > \frac{4}{-5}$

(vi) $\frac{-12}{5}$ or -3

Solution: $\frac{-12}{5}$ and $\frac{-3}{1}$

LCM of 5 and 1 = 5

$$\therefore \frac{-12}{5} \text{ and } \frac{-3\times5}{1\times5} = \frac{-15}{5}$$

Clearly, (-12) > (-15)

Hence, $\frac{-12}{5} > -3$

(i) $\frac{-3}{7} > \frac{6}{-13}$

(ii) $\frac{5}{-13} = \frac{-35}{91}$

Solution: Write the given numbers with positive denominator.

$\frac{5}{-13} = \frac{5\times(-1)}{-13\times(-1)} = \frac{-5}{13}$

LCM of 13 and 91 = 91

$\therefore \frac{-5\times7}{13\times7} = \frac{-35}{91}$ and $\frac{-35}{91}$

Clearly, (-35) = (-35)

Hence, $\frac{5}{-13} = \frac{-35}{91}$

(iii) (-2) > $\frac{-13}{5}$

Solution: $\frac{-2}{1}$ and $\frac{-13}{5}$

LCM of 1 and 5 = 5

$\therefore \frac{-2}{1} = \frac{-2\times5}{1\times5} = \frac{-10}{5}$ and $\frac{-13}{5}$

Clearly, (-10) > (-13)

Hence, $(-2) > \frac{-13}{5}$

(iv) $\frac{-2}{3} < \frac{5}{-8}$

Solution: Write the given numbers with positive denominator.

$$\frac{5}{-8} = \frac{5\times(-1)}{-8\times(-1)} = \frac{-5}{8}$$

LCM of 3 and 8 = 24

$$\therefore \frac{-2}{3} = \frac{-2\times8}{3\times8} = \frac{-16}{24}$$

$$\frac{-5}{8} = \frac{-5\times3}{8\times3} = \frac{-15}{24}$$

Clearly, $(-15) > (-16)$

Hence, $\frac{5}{-8} > \frac{-2}{3}$

(v) $0 < \frac{-3}{-5}$

Solution: Write the given numbers with positive denominator.

$$\frac{-3}{-5} = \frac{-3\times(-1)}{-5\times(-1)} = \frac{3}{5}$$

We know that every positive number greater than 0.

(vi) $\frac{-8}{9} > \frac{-9}{10}$

Solution: LCM of 9 and 10 = 90

$\therefore \frac{-8}{9} = \frac{-8\times10}{9\times10} = \frac{-80}{90}$

$\frac{-9}{10} = \frac{-9\times9}{10\times9} = \frac{-81}{90}$

Clearly, (-80) > (-81)

Hence, $\frac{-8}{9} > \frac{-9}{10}$

(8) Arrange the following rational numbers in ascending order:

(i) $\frac{4}{-9}, \frac{-5}{12}, \frac{7}{-18}, \frac{-2}{3}$

Solution: We write each of the given numbers with positive denominator. We have:

$$\frac{4}{-9} = \frac{4\times(-1)}{-9\times(-1)} = \frac{-4}{9}$$

And $\frac{7}{-18} = \frac{7\times(-1)}{-18\times(-1)} = \frac{-7}{18}$

LCM of 9, 12, 18 and 3 = 36

Now, $\frac{-4}{9} = \frac{-4\times4}{9\times4} = \frac{-16}{36}$;

$\frac{-5}{12} = \frac{-5\times3}{12\times3} = \frac{-15}{36}$;

$\frac{-7}{18} = \frac{-7\times2}{18\times2} = \frac{-14}{36}$;

$\frac{-2}{3} = \frac{-2\times12}{3\times12} = \frac{-24}{36}$

Clearly, $-24, < -16, < -15 < -14$

Hence, $\frac{-2}{3} < \frac{4}{-9} < \frac{-5}{12} < \frac{7}{-18}$.

(ii) $\frac{-3}{4}, \frac{5}{-12}, \frac{-7}{16}, \frac{9}{-24}$

Solution: We write each of the given numbers with positive denominator. We have,

$$\frac{5}{-12} = \frac{5\times(-1)}{-12\times(-1)} = \frac{-5}{12}$$

$$\frac{9}{-24} = \frac{9\times(-1)}{-24\times(-1)} = \frac{-9}{24}$$

LCM of 4, 12, 16 and 24 = 48

Now, $\frac{-3}{4} = \frac{-3\times12}{4\times12} = \frac{-36}{48}$;

$\frac{-5}{12} = \frac{-5\times4}{12\times4} = \frac{-20}{48}$;

$\frac{-7}{16} = \frac{-7\times3}{16\times3} = \frac{-21}{48}$;

$\frac{-9}{24} = \frac{-9\times2}{24\times2} = \frac{-18}{48}$

Clearly, $-36 < -21 < -20 < -18.$

Hence, $\frac{-3}{4} < \frac{-7}{16} < \frac{5}{-12} < \frac{9}{-24}$

Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1

The RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.1 on Rational Numbers offer numerous benefits for students:

Conceptual Clarity: The solutions provide clear explanations and step-by-step methods to solve problems, helping students understand the fundamental concept of rational numbers comprehensively.

Strengthening Basics: This exercise reinforces the basics of rational numbers, including their properties and operations, which are crucial for mastering more advanced topics in mathematics.

Problem-Solving Skills: Regular practice with these solutions enhances students' problem-solving skills by exposing them to various types of questions and effective solving techniques.

Exam Preparation: The solutions are designed in alignment with the Class 8 syllabus and exam pattern, helping students prepare thoroughly for their exams and improve their performance.

Confidence Building: By understanding and solving different problems, students gain confidence in their ability to handle rational numbers, reducing math anxiety.

Error Reduction: The step-by-step solutions help students identify and learn from their mistakes, leading to a deeper understanding and fewer errors in future problems.