RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.4: The Physics Wallah academic team has produced a comprehensive answer for Chapter 1: Rational Numbers in the RS Aggarwal class 8 textbook. Prior to reviewing the Rational Numbers Exercise-1D solution for Chapter 1. Read the NCERT maths textbook and use the NCERT class 8 maths solutions to answer the exercise's questions if you want to become an expert in the subject.

Experts in Physics Wallah have compiled all of the NCERT Solutions. It is necessary to have a thorough understanding of chapter 1 rational numbers, thus read the chapter 1 rational numbers theory before attempting to solve all of the exercise 1D's numerical problems. The chapter 1 Rational Numbers Exercise-1D solution for RS Aggarwal's class 8 is posted for reference only; do not duplicate the answers.

RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.4 Rational Numbers Overview

Chapter 1, Exercise 1.4 of RS Aggarwal's Class 8 Maths book focuses on Rational Numbers, which are numbers that can be expressed as the quotient of two integers, with the denominator not being zero. This exercise aims to deepen students' understanding of how to identify, compare, and perform operations with rational numbers. Key concepts include representing rational numbers in fraction form, simplifying fractions, and finding equivalent fractions.

Students learn to compare rational numbers by converting them to a common denominator or by converting them into decimal form. The exercise also involves practical problems where students apply these concepts to solve real-life scenarios. By practicing these problems, students enhance their skills in manipulating and understanding fractions, which are fundamental for grasping more advanced mathematical concepts.

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, it 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.

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 1.4

Below we have provided RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.4 Rational Numbers –

(1) Simplify:

$$\text{(i)}\ \frac{4}{9} \div \frac{-5}{12} = \frac{4}{9} \times \frac{(-12)}{5} = \frac{-16}{15}$$

$$\text{(ii)}\ -8 \div \frac{-7}{16} = -8 \times \frac{(-16)}{7} = \frac{128}{7}$$

$$\text{(iii)}\ \frac{-12}{7} \div (-18) = \frac{-12}{7} \times \frac{(-1)}{18} = \frac{2}{21}$$

$$\text{(iv)}\ \frac{-1}{10} \div \frac{-8}{5} = \frac{-1}{10} \times \frac{(-5)}{8} = \frac{1}{16}$$

$$\text{(v)}\ \frac{-16}{35} \div \frac{-15}{14} = \frac{-16}{35} \times \frac{(-14)}{15} = \frac{32}{75}$$

$$\text{(vi)}\ \frac{-65}{14} \div \frac{13}{7} = \frac{-65}{14} \times \frac{7}{13} = \frac{-5}{2}$$

(2) Verify whether the given statement is true or false:

(i) $\frac{13}{5} \div \frac{26}{10} = \frac{26}{10} \div \frac{13}{5}$

or, $\frac{13}{5} \times \frac{10}{26} = \frac{26}{10} \times \frac{5}{13}$

or, $1 = 1$ **(TRUE)**

(ii) $-9 \div \frac{3}{4} = \frac{3}{4} \div (-9)$

or, $-9 \times \frac{4}{3} = \frac{3}{4} \times \frac{-1}{9}$

or, $-12 \neq \frac{-1}{12}$ **(FALSE)**

(iii) $\frac{-8}{9} \div \frac{-4}{3} = \frac{-4}{3} \div \frac{-8}{9}$

or, $\frac{-8}{9} \times \frac{(-3)}{4} = \frac{-4}{3} \times \frac{(-9)}{8}$

or, $\frac{2}{3} \neq \frac{3}{2}$ **(FALSE)**

(iv) $\frac{-7}{24} \div \frac{3}{-16} = \frac{3}{-16} \div \frac{-7}{24}$

or, $\frac{-7}{24} \times \frac{(-16)}{3} = \frac{-3}{16} \times \frac{(-24)}{7}$

or, $\frac{14}{9} \neq \frac{9}{14}$ **(FALSE)**

(3) Verify whether the given statement is true or false:

(i) $\left(\frac{5}{9} \div \frac{1}{3}\right) \div \frac{5}{2} = \frac{5}{9} \div \left(\frac{1}{3} \div \frac{5}{2}\right)$

or, $\left(\frac{5}{9} \times 3\right) \div \frac{5}{2} = \frac{5}{9} \div \left(\frac{1}{3} \times \frac{2}{5}\right)$

or, $\frac{5}{3} \times \frac{2}{5} = \frac{5}{9} \times \frac{15}{2}$

or, $\frac{2}{3} \neq \frac{25}{6}$ **(FALSE)**

(ii) $\left\{(-16) \div \frac{6}{5}\right\} \div \frac{-9}{10} = (-16) \div \left\{\frac{6}{5} \div \frac{-9}{10}\right\}$

or, $\left(-16 \times \frac{5}{6}\right) \div \frac{(-9)}{10} = (-16) \div \left\{\frac{6}{5} \times \frac{(-10)}{9}\right\}$

or, $\frac{-40}{3} \times \frac{(-10)}{9} = (-16) \times \frac{(-3)}{4}$

or, $\frac{400}{27} \neq 12$ **(FALSE)**

(iii) $\left(\frac{-3}{5} \div \frac{-12}{35}\right) \div \frac{1}{14} = \frac{-3}{5} \div \left(\frac{-12}{35} \div \frac{1}{14}\right)$

$\text{or}, \left\{\left(\frac{-3}{5} \times \frac{(-35)}{12}\right)\right\} \div \frac{1}{14} = \frac{(-3)}{5} \div \left\{\frac{-12}{35} \times 14\right\}$

$\text{or}, \frac{7}{4} \times 14 = \frac{-3}{5} \times \frac{(-5)}{24}$

$\text{or}, \frac{49}{2} \neq \frac{1}{8}$ **(FALSE)**

(4) The product of two rational numbers is – 9. If one of the numbers is – 12, find the other.

Solution: Let the number be x.

$(-12)x = -9$

$or, x = \frac{-9}{-12}$

$or, x = \frac{3}{4}$

(5) The product of two rational numbers is (-16)/9. If one of the numbers is (-4)/3, find the other.

Solution: Let the number be x.

$$\frac{(-4)}{3} \times x = \frac{-16}{9}$$

$$or, x = \frac{-16}{9} \times \frac{(-3)}{4}$$

$$or, x = \frac{4}{3}$$

(6) By what rational number should we multiply (-15)/56 to get (-5)/7?

Solution: Let the number be x.

$$\frac{(-15)}{56} \times x = \frac{-5}{7}$$

$$or, x = \frac{-5}{7} \times \frac{(-56)}{15}$$

$$or, x = \frac{8}{3}$$

(7) By what rational number should (-8)/39 be multiplied to obtain 1/26?

Solution: Let the number be x.

$$\frac{-8}{39} \times x = \frac{1}{26}$$

$$or, x = \frac{1}{26} \times \frac{(-39)}{8}$$

$$or, x = \frac{-3}{16}$$

(8) By what number should (-33)/8 be divided to get (-11)/2?

Solution: Let the number be x.

$$\frac{-33}{8} \div x = \frac{-11}{2}$$

$$or, \frac{1}{x} = \frac{-11}{2} \times \frac{(-8)}{33}$$

$$or, \frac{1}{x} = \frac{4}{3}$$

$$or, x = \frac{3}{4}$$

(9) Divide the sum of 13/5 and (-12)/7 by the product of (-31)/7 and 1/(-2).

Solution: $\left(\frac{13}{5}+\frac{(-12)}{7}\right)\div\left\{\frac{-31}{7}\times\frac{(-1)}{2}\right\}$

$=\left(\frac{91-60}{35}\right)\div\left(\frac{31}{14}\right)$

$=\frac{31}{35}\times\frac{14}{31}$

$=\frac{2}{5}$

(10) Divide the sum of 65/12 and 8/3 by their difference.

Solution: $\left(\frac{65}{12}+\frac{8}{3}\right)\div\left(\frac{65}{12}-\frac{8}{3}\right)$

$=\left(\frac{65+32}{12}\right)\div\left(\frac{65-32}{12}\right)$

$=\frac{97}{12}\times\frac{12}{33}$

$=\frac{97}{33}$

(11) Fill in the blanks:

(i) $\frac{9}{8} \div (\ldots.) = \frac{-3}{2}$

(ii) $(\ldots.) \div \left(\frac{-7}{5}\right) = \frac{10}{19}$

(iii) $(\ldots.) \div (-3) = \frac{-4}{15}$

(iv) $(-12) \div (\ldots.) = \frac{-6}{5}$

(12) (i) Are rational numbers always closed under division?

Ans: No

(ii) Are rational numbers always commutative under division?

Ans: No

(iii) Are rational numbers always associative under division?

Ans: No

(iv) Can we divide 1 by 0?

Ans: No

Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.4

RS Aggarwal Solutions for Class 8 Maths Chapter 1, Exercise 1.4 on Rational Numbers offer several benefits for students:

Conceptual Clarity: The solutions provide step-by-step explanations, helping students understand the fundamental concepts of rational numbers, including representation, simplification, and comparison. This clarity helps solidify their grasp of the topic.

Practice and Mastery: By working through various problems, students gain hands-on experience with different types of rational number questions. This practice is crucial for mastering the skills needed to solve complex problems.

Error Correction: The solutions highlight common mistakes and misunderstandings, guiding students on how to correct them. This feedback is essential for improving accuracy and building confidence.

Time Management: Detailed solutions demonstrate efficient problem-solving strategies, which can help students learn how to approach and solve problems more quickly and effectively.

Preparation for Exams: Regular practice with these solutions helps students prepare for exams by reinforcing their understanding and improving their ability to tackle similar questions under timed conditions.

Building a Strong Foundation: Mastery of rational numbers through these solutions lays a solid foundation for more advanced topics in algebra and mathematics, contributing to overall academic success.