RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.2: The Physics Wallah academic team has produced a comprehensive answer for Chapter 1: Rational Numbers in the RS Aggarwal class 8 textbook. The RS Aggarwal class 8 solution for Chapter 1 Rational Numbers Exercise-1B is uploaded for reference only; do not copy the solutions. Before proceeding with the solution of chapter-1 Rational Numbers Exercise-1B, one must have a clear understanding of chapter-1 Rational Numbers. Read the theory of Chapter 1 Rational Numbers and then attempt to solve all numerical of exercise-1B.

Read the NCERT maths textbook and use the NCERT class 8 maths solutions to answer the exercise questions if you want to become an expert in the subject. Experts in Physics Wallah have compiled all of the NCERT Solutions.

RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.2 Rational Numbers Overview

Chapter 1 of RS Aggarwal's Class 8 Maths book, focusing on Rational Numbers, is foundational for understanding number theory. Exercise 1.2 specifically deals with identifying, comparing, and performing basic operations with rational numbers. This exercise introduces rational numbers as fractions where both the numerator and denominator are integers, and the denominator is non-zero. Students are guided through various problems to simplify rational numbers, convert them to equivalent forms, and compare their sizes using common denominators.

The exercise emphasizes the concept of rational numbers in different forms, including positive and negative fractions, and zero. It provides practice in finding equivalent fractions and understanding how to express them in their simplest form. Additionally, it covers operations like addition and subtraction of rational numbers, reinforcing the rules for combining fractions with different denominators.

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 1.2

Below we have provided RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.2 Rational Numbers –

Question 1

Represent these numbers on the number line.

Solution:

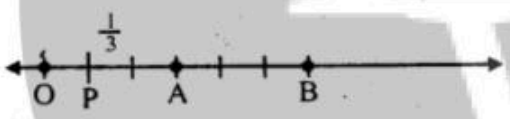
(i) 1/3

Draw a line and take a point O on it.

Let it represent 0.

From O, set off unit OA, AB to right side of O, representing integers 1, 2 respectively.

Now, divide OA into 3 equal parts and take one part OR Which is 1/3 as shown below on the line.

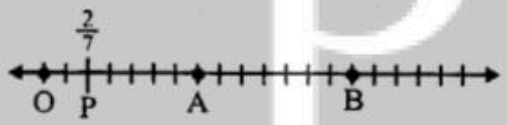


(ii) $\frac{2}{7}$

Draw a line and take a point O on it Let it represent 0.

From O, set off units OA, AB to right side of O. Now divide OA into 7 equal parts and take two parts. Let OP = 2 parts.

Then OP = $\frac{2}{7}$ as shown on the number line given below :



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

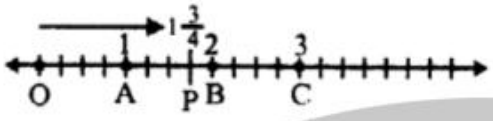
Draw a line and take a point O on it. Let it represent 0.

From O, set off units OA. Units OA, AB, BC to the right side of O.

Now divide AB into 4 equal parts and take 3 equal parts such that AP = $\frac{3}{4}$

then OP = $1 + \frac{3}{4} = 1\frac{3}{4}$

as shown on the number line given below.



(iv) $2\frac{2}{5}$

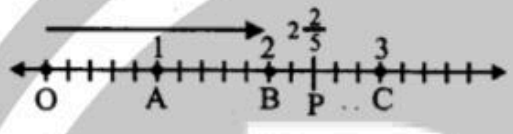
Draw a line and take a point O on it. Let it represent 0.

From O, set off units OA, AB, BC, CD to right side of O.

Now, divide BC into 5 equal parts and

take 2 equal parts. Then BP = $\frac{2}{5}$

$\therefore$ OP = OB + BP = $2 + \frac{2}{5} = 2\frac{2}{5}$ as shown on the number line as given below:



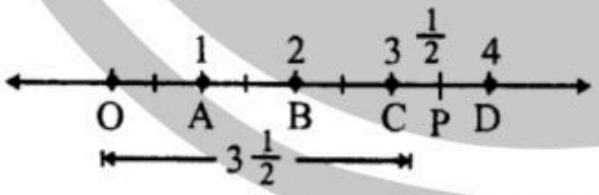
(v) $3\frac{1}{2}$

Draw a line and take a point O on it, Let it represent 0.

From O, set off units OA, AB, BC, CD to the right side of O.

Now, divide CD into two equal parts and take one part. then CP = $\frac{1}{2}$

$\therefore$ OP = OC + CP = $3 + \frac{1}{2} = 3\frac{1}{2}$ as shown on the number line as given below:



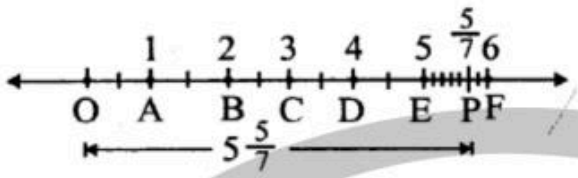
(vi) $5\frac{5}{7}$

Draw a line and take a point O on it. Let it represent 0.

From O, set off units OA, AB, BC, CD, DE, EF to the right side of O.

Now divide EF into seven equal parts and take EP = 5 equal parts

Then $OP = OE + EP = 5 + \frac{5}{7} = 5\frac{5}{7}$ as shown on the line given below :



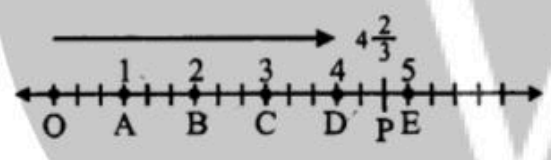
(vii) $4\frac{2}{3}$

Draw a line and take a point O on it. Let O represents 0.

From O, set off units OA, AB, BC, CD, DE, EF on the right side of O. Divide EF into 3 equal parts and take two parts

then $EP = \frac{2}{3}$

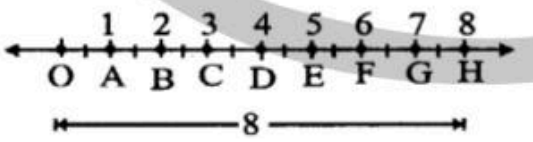
$\therefore$ $OP = OE + EP = 4 + \frac{2}{3} = 4\frac{2}{3}$ as shown on the number line given below :



(viii) 8

Draw a line and take a point O on it. Let O represents 0. From O, set off units OA, AB, BC, CD, DE, EF, FG and GH on the right side of O.

Then OH = 8

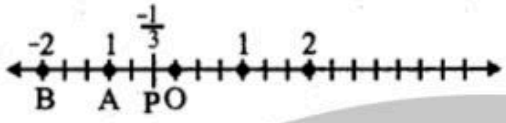


Question 2

Represent the following on the number line -

Solution:

(i) -1/3
Draw a line and take a point O on it.
Let it represent O.
Now, from O, take OA, AB to the left of O, representing integers – 1, – 2 respectively. Divide OA into three equal parts and take one part.
Then OP =-1/3 which is shown on the number line as given below :

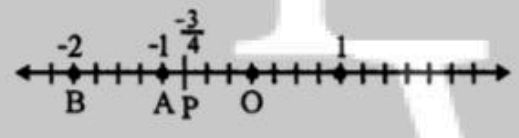


(ii) $\frac{-3}{4}$

Draw a line and take a point O on it. Let it represent 0.

Now from O, take OA, AB to the left of O, representing integers -1, -2 respectively. Divide OA into 4 equal parts and take 3 parts.

Then OA = $\frac{-3}{4}$ which is shown on the number line as given below :



(iii) $-1\frac{2}{3}$

Draw a line and take a point O on it. Let it present 0.

Now from O, take OA, AB to the left of O is representing integers -1, -2 respectively

Divide AB into 3 equal parts and take 2 parts then AP = $\frac{2}{3}$

$\therefore$ OP = $-(1 + \frac{2}{3}) = -1\frac{2}{3}$ as shown on the number line as given below :

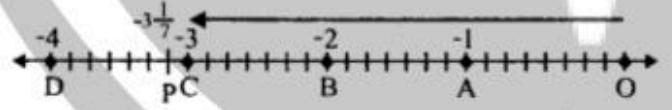
(iv) $-3\frac{1}{7}$

Draw a line and take a point O on it. Let it represent 0.

From O, take OA, AB, BC, CD on the left of O representing the integers –1, –2, –3, –4

Divide CD into 7 equal parts and take one point at P. Then CP = $\frac{1}{7}$

$\therefore$ OP = OC + CP = $-(3 + \frac{1}{7}) = -3\frac{1}{7}$ as shown on the number line as given below:



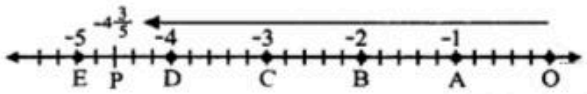
(v) $-4\frac{3}{5}$

Draw a line and take a point O on it Let it represent 0.

From O, take OA, AB, BC, CD, DE on the left of O representing –1, –2, –3, –4, –5 respectively.

Divide DE into 5 equal parts and take 3 equal parts so that DP = $\frac{3}{5}$

Then OP = $-(4 + \frac{3}{5}) = -4\frac{3}{5}$ as shown on the number line as given below :



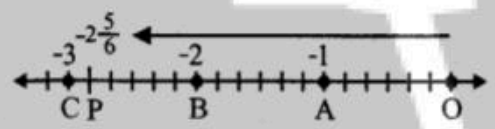
(vi) $-2\frac{5}{6}$

Draw a line and take a point O on it. Let it represent 0.

From O, take OA, AB, BC on the left of D representing –1, –2, –3 respectively.

Divide C into 6 equal parts and take 5 parts so that BP = $\frac{5}{6}$

Then OP = $-\left(2+\frac{5}{6}\right)=-2\frac{5}{6}$ as shown on the number line as given below :

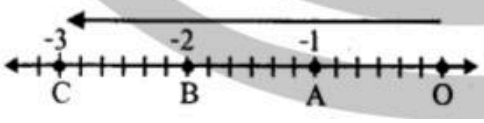


(vii) –3

Draw a line and take a point O on it. Let it represent 0.

From O, take OA, AB, BC on the left of O, representing –1, –2, –3 respectively.

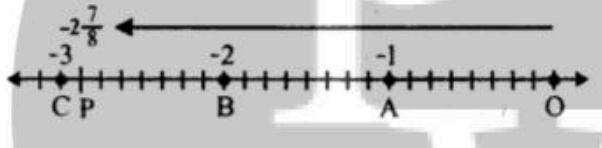
OC = –3 as shown on the number line as given below :



(viii) $-2\frac{7}{8}$

Draw a line and take a point O on it. Let it present 0 From O, take OA, AB, BC on the left of O respresenting –1, –2, –3. respectively. Divide BC into 8 equal parts and take 7 parts then BP = $\frac{7}{8}$.

$\therefore$ OP = $-\left(2+\frac{7}{8}\right) = -2\frac{7}{8}$ as shown on the line as given below :



Question 3.

State True or false for the following statements -

Solution:

(i) True, as the numbers left of O are negative.

(ii) False, as the numbers right of O are positive and -12/7 is negative.

(iii) True, as 1/3 is positive and -5/2 is negative.

Question 4.

Add the following unlike fractions -

Solution:

(i) -2/5 + 4/5

= -2+5 / 5= 2/5

(ii) $\frac{-6}{11}+\frac{-4}{11}=\frac{-6-4}{11}=\frac{-10}{11}$

(iii) $\frac{-11}{8}+\frac{5}{8}=\frac{-11+5}{8}=\frac{-6}{8}=\frac{-6\div 2}{8\div 2}=\frac{-3}{4}$

(iv) $\frac{-7}{3}+\frac{1}{3}=\frac{-7+1}{3}=\frac{-6}{3}$

$\frac{-6\div 3}{3\div 3}=\frac{-2}{1}=-2$

(v) $\frac{5}{6}+\frac{-1}{6}=\frac{5-1}{6}=\frac{4}{6}=\frac{4\div 2}{6\div 2}=\frac{2}{3}$

(vi) $\frac{-17}{15}+\frac{-1}{15}=\frac{-17-1}{15}=\frac{-18}{15}$

$\frac{-18\div 3}{15\div 3}=\frac{-6}{5}$

Question 5.

Add the following fractions and write their LCM -

Solution:

(i) ¾ + -3/5

(LCM of 4, 5 = 20)

(ii) $\frac{5}{8}+\frac{-7}{12}$

$= \frac{15+(-14)}{24} = \frac{15-14}{24} = \frac{1}{24}$

(LCM of 8, 12 = 24)

(iii) $\frac{-8}{9}+\frac{11}{6}$

$\frac{-16+33}{18} = \frac{-17}{18}$ (LCM of 9, 6 = 18)

(iv) $\frac{-5}{16}+\frac{7}{24}$

$\frac{-15+14}{48} = \frac{1}{48}$ (LCM of 16, 24 = 48)

(v) $\frac{7}{-18}+\frac{8}{27} = \frac{-7}{18}+\frac{8}{27}$

$\frac{-21+16}{54} = \frac{-5}{54}$ (LCM of 18, 27 = 54)

(vi) $\frac{1}{-12}+\frac{2}{-15}$

$= \frac{-1}{12}+\frac{-2}{15}$

$= \frac{-5+(-8)}{60}$ (LCM of 12, 15 = 60)

$$= \frac{-5-8}{60} = \frac{-13}{60}$$

(vii) $-1+\frac{3}{4}$

$$\frac{-4+3}{4} = \frac{-1}{4}$$

(viii) $2 + \frac{-5}{4}$

$$\frac{8+(-5)}{4} = \frac{8-5}{4} = \frac{3}{4}$$

(ix) $0+\frac{-2}{5}$

$$\frac{0-2}{5} = \frac{-2}{5}$$ Ans.

Question 5.

Solve the following -

Solution:

(i) L.H.S = -12/5 + 2/7
=-84/10/35 = -74/35

$$\text{R.H.S.} = \frac{2}{7}+\frac{-12}{5} = \frac{10-84}{35} = \frac{-74}{35}$$

$$\therefore \quad \frac{-12}{5}+\frac{2}{7} = \frac{2}{7}+\frac{-12}{5}$$

(ii) L.H.S. $= \frac{-5}{8}+\frac{-9}{13}=\frac{-65-72}{104}=\frac{-137}{104}$

R.H.S. $= \frac{-9}{13}+\frac{-5}{8}=\frac{-72-65}{104}=\frac{-137}{104}$

$\therefore \quad \frac{-5}{8}+\frac{-9}{13}=\frac{-9}{13}+\frac{-5}{8}$

(iii) L.H.S. $= 3+\frac{-7}{12}=\frac{36-7}{12}=\frac{29}{12}$

R.H.S. $= \frac{-7}{12}+3=\frac{-7+36}{12}=\frac{29}{12}$

$\therefore \quad 3+\frac{-7}{12}=\frac{-7}{12}+3$

(iv) L.H.S. $= \frac{2}{-7}+\frac{12}{-35}=\frac{-2}{7}+\frac{-12}{35}$

$= \frac{-10-12}{35}=\frac{-22}{35}$

R.H.S. $= \frac{12}{-35}+\frac{2}{-7}=\frac{-12}{35}+\frac{-2}{7}$

$= \frac{-12-10}{35}=\frac{-22}{35}$

$\therefore \quad \frac{2}{-7}+\frac{12}{-35}=\frac{12}{-35}+\frac{2}{-7}$

Question 7.

Solve the following RHS and LHS of the following -

Solution:

(i) L.H.S. $= \left(\frac{3}{4}+\frac{-2}{5}\right)+\frac{-7}{10}$

$= \frac{15+(-8)}{20}+\frac{-7}{10}$

$= \frac{15-8}{20}+\frac{-7}{10} = \frac{7}{20}+\frac{-7}{10}$

$= \frac{7+(-14)}{20} = \frac{7-14}{20} = \frac{-7}{20}$

R.H.S. $= \frac{3}{4}+\left(\frac{-2}{5}+\frac{-7}{10}\right)$

$= \frac{3}{4}+\frac{-4+(-7)}{10}$

$= \frac{3}{4}+\frac{-4-7}{10} = \frac{3}{4}+\frac{-11}{10}$

$= \frac{15+(-22)}{20} = \frac{15-22}{20} = \frac{-7}{20}$

$\therefore \quad \left(\frac{3}{4}+\frac{-2}{5}\right)+\frac{-7}{10} = \frac{3}{4}+\left(\frac{-2}{5}+\frac{-7}{10}\right)$

(ii) L.H.S. $= \left(\frac{-7}{11}+\frac{2}{-5}\right)+\frac{-13}{22}$

$= \left(\frac{-7}{11}+\frac{-2}{5}\right)+\frac{-13}{22}$

$= \frac{-35+(-22)}{55}+\frac{-13}{22}$

$= \frac{-35-22}{55}+\frac{-13}{22}$

$= \frac{-57}{55}+\frac{-13}{22}$

$= \frac{-114-65}{110} = \frac{-179}{110}$

R.H.S. $= \frac{-7}{11}+\left(\frac{2}{-5}+\frac{-13}{22}\right)$

$= \frac{-7}{11}+\left(\frac{-2}{5}+\frac{-13}{22}\right)$

$= \frac{-7}{11}+\frac{-44+(-65)}{110}$

$= \frac{-7}{11}+\frac{-44-65}{110} = \frac{-7}{11}+\frac{(-109)}{110}$

$= \frac{-70+(-109)}{110}$

$= \frac{-70-109}{110} = \frac{-179}{110}$

$\therefore \quad \left(\frac{-7}{11}+\frac{2}{-5}\right)+\frac{-13}{22} = \frac{-7}{11}+\left(\frac{2}{-5}+\frac{-13}{22}\right)$

(iii) L.H.S. $= -1 + \left(\frac{-2}{3}+\frac{-3}{4}\right)$

$= -1 + \frac{-8+(-9)}{12} = -1+\frac{-8-9}{12}$

$= \frac{-1}{1}+\frac{-17}{12}$

$= \frac{-12-17}{12} = \frac{-29}{12}$

$$\text{R.H.S.} = \left(-1+\frac{-2}{3}\right)+\frac{-3}{4}$$

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

$$= \frac{-3-2}{3}+\frac{-3}{4} = \frac{-5}{3}+\frac{-3}{4}$$

$$= \frac{-20+(-9)}{12} = \frac{-20-9}{12} = \frac{-29}{12}$$

$$\therefore -1 + \left(\frac{-2}{3}+\frac{-3}{4}\right) = \left(-1+\frac{-2}{3}\right)+\frac{-3}{4}$$

Question 8.

Using appropriate properties, find:

(i) $\left(\frac{-3}{17}\right)+\left(\frac{-12}{5}\right)=\left(\frac{-12}{5}\right)+\left(\frac{-3}{17}\right)$

(By commutative Law of addition)

(ii) $(-9)+\left(\frac{-21}{8}\right)+\left(\frac{-21}{8}\right)+(-9)$

(By commutative Law of addition)

(iii) $\left(\frac{-8}{13}+\frac{3}{7}\right)+\left(\frac{-13}{4}\right)=\left(\frac{-8}{13}\right)+\left[\frac{3}{7}+\left(\frac{-13}{4}\right)\right]$

(By Associative Law of addition)

(iv) $-12+\left(\frac{7}{12}+\frac{-9}{11}\right)=\left(-12+\frac{7}{12}\right)+\left(\frac{-9}{11}\right)$

(By Associative Law of addition)

(v) $\frac{19}{-5}+\left(\frac{-3}{11}+\frac{-7}{8}\right)=\left\{\frac{19}{-5}+\frac{-3}{11}\right\}+\frac{-7}{8}$

(By, Associative Law of addition)

(vi) $\frac{-16}{7}+0=0+\frac{-16}{7}=\frac{-16}{7}$

[Existance of Additive Identity (0)] Ans.

Question 9

Write the additive inverse 0f the following -

We know that additive inverse of a/b is-a/b and of –a/b is a/b.
Therefore Additive inverse of

(i) $\frac{1}{3}$ will be $\frac{-1}{3}$

(ii) $\frac{23}{9}$ will be $\frac{-23}{9}$

(iii) -18 will be 18

(iv) $\frac{-17}{8}$ will be $\frac{17}{8}$

(v) $\frac{15}{-4}$ or $\frac{-15}{4}$ will be $\frac{15}{4}$

(vi) $\frac{-16}{-5}$ or $\frac{16}{5}$ will be $\frac{-16}{5}$

(vii) $\frac{-3}{11}$ will be $\frac{3}{11}$

(viii) 0 will be 0

($\because$ zero has no additive inverse)

(ix) $\frac{19}{-6}$ or $\frac{-19}{6}$ will be $\frac{19}{6}$

(x) $\frac{-8}{-7}$ or $\frac{8}{7}$ will be $\frac{-8}{7}$ Ans.

Question 10

Solve the following fractions -

Solution:

(i) ¾ from 1/3 or 1/3 – ¾
= -5/12

(ii) $\frac{-5}{6}$ from $\frac{1}{3}$ or $\frac{1}{3} - \frac{-5}{6}$

$$= \frac{2-(-5)}{6} = \frac{2+5}{6} = \frac{7}{6}$$

(iii) $\frac{-8}{9}$ from $\frac{-3}{5}$

$$\frac{-3}{5} - \frac{-8}{9}$$

$$= \frac{-27-(-40)}{45} = \frac{-27+40}{45} = \frac{13}{45}$$

(iv) $\frac{-9}{7}$ from -1

$$\frac{-1}{1} - \frac{-9}{7}$$

$$= \frac{-7-(-9)}{7} = \frac{-7+9}{7} = \frac{2}{7}$$

(v) $\frac{-18}{11}$ from 1

$$= \frac{1}{1} - \frac{-18}{11}$$

$$= \frac{11-(-18)}{11} = \frac{11+18}{11} = \frac{29}{11}$$

(vi) $\frac{-13}{9}$ from 0

$$= 0 - \left(\frac{-13}{9}\right)$$

$$= \frac{-0-(-13)}{9} = \frac{13}{9}$$

(vii) $\frac{-32}{13}$ from $\frac{-6}{5}$

$= \frac{-6}{5} - \frac{-32}{13}$

$= \frac{-78-(-160)}{65} = \frac{-78+160}{65}$

$= \frac{82}{65}$

(viii) -7 from $\frac{-4}{7}$

$= \frac{-4}{7} - \left(\frac{-7}{1}\right)$

$= \frac{-4-(-49)}{7} = \frac{-4+49}{7} = \frac{45}{7}$ Ans.

Question 11

Solve the following unlike fractions -

Solution:

(i) $\frac{4}{3}+\frac{3}{5}+\frac{-2}{3}+\frac{-11}{5}$

$= \left(\frac{4}{3}+\frac{-2}{3}\right)+\left(\frac{3}{5}+\frac{-11}{5}\right)$

$= \frac{4+(-2)}{3}+\frac{3-11}{5}$

$= \frac{2}{3}+\left(\frac{-8}{5}\right)$

$= \frac{10+(-24)}{15} = \frac{10-24}{15} = \frac{-14}{15}$ Ans.

(ii) $\frac{-8}{3}+\frac{-1}{4}+\frac{-11}{6}+\frac{3}{8}$

$= \left(\frac{-8}{3}+\frac{-11}{6}\right)+\left(\frac{-1}{4}+\frac{3}{8}\right)$

$$= \frac{-16+(-11)}{6} + \frac{-2+3}{8}$$

$$= \frac{-16-11}{6} + \frac{1}{8} = \frac{-27}{6} + \frac{1}{8}$$

$$= \frac{-108+3}{24} = \frac{-105}{24}$$

$$= \frac{-105 \div 3}{24 \div 3} = \frac{-35}{8} \text{ Ans.}$$

(iii) $\frac{-13}{20} + \frac{11}{14} + \frac{-5}{7} + \frac{7}{10}$

$$= \left(\frac{-13}{20} + \frac{7}{10}\right) + \left(\frac{11}{14} + \frac{-5}{7}\right)$$

$$= \frac{-13+14}{20} + \frac{11+(-10)}{14}$$

$$= \frac{1}{20} + \frac{1}{14}$$

$$= \frac{7+10}{140} = \frac{17}{140} \text{ Ans.}$$

(iv) $\frac{-6}{7}+\frac{-5}{6}+\frac{-4}{9}+\frac{-15}{7}$

$=\left(\frac{-6}{7}+\frac{-15}{7}\right)+\left(\frac{-5}{6}+\frac{-4}{9}\right)$

$=\frac{-6-15}{7}+\frac{-15+(-8)}{18}$

$=\frac{-21}{7}+\frac{-23}{18}$

$=\frac{-378+(-161)}{126}$

$=\frac{-378-161}{126}=\frac{-539}{126}$

$=\frac{-539\div 7}{126\div 7}=\frac{-77}{18}$ Ans.

Benefits of RS Aggarwal Solutions for Class 8 Maths Chapter 1 Exercise 1.2

The RS Aggarwal Solutions for Class 8 Maths Chapter 1, Exercise 1.2 on Rational Numbers offer several key benefits to students:

Concept Reinforcement: The solutions help reinforce fundamental concepts of rational numbers, including their definition, simplification, and comparison. This solidifies students' understanding of how to work with fractions and their equivalents.

Step-by-Step Guidance: Each solution provides a clear, step-by-step approach to solving problems. This methodical breakdown helps students understand the process behind each answer, promoting better comprehension and problem-solving skills.

Varied Problem Types: The exercise covers a range of problem types, from basic simplifications to more complex comparisons. This variety ensures that students are well-prepared for different kinds of questions they may encounter.

Error Correction: By reviewing the solutions, students can identify and correct mistakes in their work. Understanding where they went wrong helps them avoid similar errors in the future.

Enhanced Practice: The solutions offer additional practice problems beyond those found in the textbook, helping students gain confidence and proficiency in handling rational numbers.

Conceptual Clarity: Detailed explanations and examples in the solutions clarify common misconceptions about rational numbers, ensuring that students have a thorough understanding of the topic.