CHAPTER 9

RATIONAL NUMBERS

- A number written in the form of $\frac{p}{q}$ where $q \neq 0$.

  e.g., $\frac{1}{2}, \frac{3}{7}, \frac{-5}{8}, \frac{-13}{15}, \frac{17}{-19}$

- The number zero is neither a positive nor a negative rational numbers.
- Rational numbers are classified as positive and negative rational numbers.
- All integers and fractions are Rational numbers.

QUESTIONS

1. Find a rational number whose numerator is (20 – 15) and denominator is [2 × (–3)].
2. Find a rational number whose numerator is (35 – 15) and denominator is [3 × (–7)].
3. Convert $\frac{-4}{5}$ into a rational number whose numerator is 24.
4. Express $\frac{-6}{-7}$ as a rational number whose denominator is –42.
5. Express $\frac{-5}{-9}$ as a rational number whose denominator is 45.
6. Express $\frac{27}{-45}$ in the standard form.
7. Express $\frac{64}{128}$ in the simplest form.
8. Express $\frac{-25}{-115}$ in the standard form.
9. Express $\frac{-77}{22}$ in the lowest form.

10. Express $\frac{-8}{28}$ in the standard form.

11. Express $\frac{-12}{-30}$ in the simplest form.

12. Find any two equivalent numbers of $\frac{-10}{17}$.

13. Find two equivalent numbers

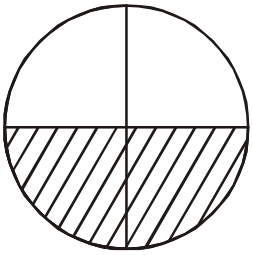
$$\frac{-4}{-9} = \frac{\square}{18} = \frac{12}{\square}$$

14. Find two equivalent numbers

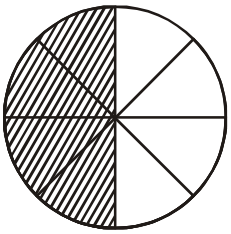
$$\frac{6}{-13} = \frac{-12}{\square} = \frac{24}{\square}$$

15. Find two equivalent numbers of $\frac{7}{-15}$.

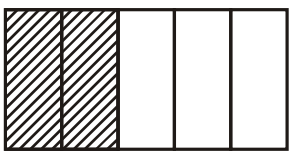
16. Express the figure given as a rational number.



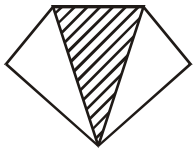
17. Express the figure given as a rational number.



18. Express the shaded portion in the form of fraction.



19. Express the shaded portion in the given figure as a rational number.



20. How many rational numbers are there between any two rational numbers?

21. Which one is greater 3/4 or 5/4.

22. What is the product of a number and its multiplicative inverse.

23. Calculate $\frac{4}{9} + \frac{9}{4}$.

24. Tell the rational number whose additive inverse is –7.

25. Simplify : $\frac{-3}{4} + \frac{5}{9}$

26. Simplify : $\frac{-8}{19} + \left(\frac{-2}{57}\right)$

27. Simplify : $\frac{5}{6} + \left(-\frac{5}{9}\right)$

28. Find the value of : $\frac{13}{5} - \frac{12}{25}$

29. Find the value of : $\frac{-6}{13} - \left(\frac{-7}{13}\right)$

30. Find the value of : $\frac{5}{63} - \left(\frac{-8}{21}\right)$

31. Simplify : $\frac{2}{3} + \frac{3}{4} + \frac{1}{12}$

32. The sum of two rational numbers is $\frac{11}{5}$. If one of them is $\frac{-4}{15}$, find the other rational number.

33. The sum of two rational numbers is –8. If one of the numbers is $\frac{-15}{7}$, find the other number.

34. What number should be added to $\frac{-5}{11}$ so as to get $\frac{26}{33}$?

35. Pawan gives $\frac{1}{5}$ th part of his monthly income in charity and deposits $\frac{1}{6}$ th part in the bank. He spends the remaining amount. What part of his salary does he spend?

36. Give the additive inverse of $\frac{4}{5} + \frac{1}{5}$.

37. Give the additive inverse of $\frac{6}{7} - \frac{2}{7}$.

38. What number should be subtracted from $\frac{-7}{8}$ to get $\frac{5}{9}$?

39. Subtract $\frac{4}{5}$ from $\frac{5}{4}$.

40. Multiply $\left(\frac{-2}{9}\right)$ by $\frac{33}{54}$.

41. Multiply $\left(\frac{-3}{7}\right)$ by $\frac{7}{5}$.

42. Multiply $\left(\frac{9}{-11}\right)$ by $\left(\frac{22}{-27}\right)$

43. Simplify and express the result as a rational number in standard form : $\left(\frac{-14}{9}\right) \times (-27)$

44. The product of two rational numbers is $\frac{-7}{9}$. If one of the numbers is $\frac{-4}{9}$, find the other number.

45. Simplify : $\frac{56}{25} \div \frac{(-7)}{50}$

46. Express the number $\frac{1}{2} + \frac{1}{5}$ as a decimal.

47. Find the multiplicate inverse of $\frac{3}{11} + \frac{5}{9}$.

48. Find the reciprocal of $\frac{-7}{26} + \left(\frac{-11}{39}\right)$

49. A man travels a distance of $\frac{13}{11}$ km by car and $\frac{9}{11}$ km by bus to reach his destination. How much distance did he travell in all?

50. A child walks $\frac{7}{24}$ km towards north and then $\frac{17}{36}$ km towards south. How far is the child now from the starting point?

ANSWERS

1. $\frac{-5}{6}$
2. $\frac{-20}{21}$
3. $\frac{24}{-30}$
4. $\frac{-36}{-42}$
5. $\frac{25}{45}$
6. $\frac{-3}{5}$
7. $\frac{1}{2}$
8. $\frac{5}{23}$
9. $\frac{-7}{2}$
10. $\frac{-2}{7}$
11. $\frac{2}{5}$
12. $\frac{-20}{34}, \frac{-30}{51}$
13. 8, 27
14. 26, –52
15. $\frac{14}{-30}, \frac{-49}{105}$
16. $\frac{2}{4}$
17. $\frac{4}{8}$
18. $\frac{2}{5}$
19. $\frac{1}{3}$
20. infinite.
21. $\frac{5}{4}$
22. 1
23. $\frac{117}{36}$
24. 7
25. $\frac{-7}{36}$
26. $\frac{-26}{57}$
27. $\frac{5}{18}$
28. $\frac{53}{25}$
29. $\frac{1}{13}$
30. $\frac{29}{63}$
31. $\frac{3}{2}$
32. $\frac{37}{15}$
33. $\frac{-41}{7}$
34. $\frac{41}{33}$
35. $\frac{19}{30}$ th part
36. –1

37. $\frac{-4}{7}$

38. $\frac{-103}{72}$

39. $\frac{9}{20}$

40. $\frac{-11}{81}$

41. $\frac{-3}{5}$

42. $\frac{2}{3}$

43. 42

44. $\frac{7}{4}$

45. –16

46. 0.7

47. $\frac{99}{82}$

48. $\frac{-78}{43}$

49. 2 km

50. $\frac{13}{72}$