Atomic Energy Education Society

Session : 2023 – 24

Class: VIII   **Subject: Mathematics**

WORKSHEET NO.- 1

Name of the Chapter : Rational Numbers

1. This work sheet is divided into **five** sections-**A, B, C.D and E.**
2. **Section A**-Question No, **1** to **10** are multiple choice questions. Each question carries **1** mark.
3. **Section B** -Question No. **11** to **20** are Very Short answer type questions. Each question carries **1** marks.
4. **Section C**- Question No. **21 to 30**. Each question carries **2** marks.
5. **Section D** -Question No. **31** to **35**. Each question carries **3** marks.
6. **Section E**- Question No. **36** to **40** carry **5** marks.

SECTION – A   (1 x 10 = 10 Marks)

Choose the correct option

1. $(-1\frac{3}{5}) - (\frac{-7}{10}) = $ _____.

    a) $\frac{-9}{10}$ (b) $\frac{-15}{10}$ (c) $\frac{-7}{50}$ (d) $\frac{11}{5}$

2. The product of a non-zero rational number and its reciprocal is_____.

  (a) 1   (b) 2   (c) 3   (d) 4

3. A number which can be expressed as p/q where p and q are integers and $q \neq 0$ is_____.

  (a) natural number.   (b) whole number.   (c) integer.   (d) rational number.

4. The numerical expression $\frac{3}{5} + \frac{-7}{5} = \frac{-4}{5}$ shows that

  (a) rational numbers are closed under addition.

  (b) rational numbers are not closed under addition.

  (c) rational numbers are closed under multiplication.

  (d) addition of rational numbers is not commutative.

5. The additive inverse of $\frac{-7}{5}$ is_____.

  (a) $\frac{-5}{7}$ (b) $\frac{7}{5}$ (c) $\frac{-17}{5}$ (d) $\frac{-7}{15}$

6. The reciprocal of 0 is_____.

  (a) 1   (b) –1   (c) 0   (d) Not defined

7. The multiplicative inverse of 1/8 is

  (a)-1/8   (b)1   (c) 8   (d) -8

8. The product of two rational numbers is $-\dfrac{28}{81}$. If one of the numbers is $\dfrac{14}{27}$ then the other one is

(a) $\dfrac{-2}{3}$ (b) $\dfrac{2}{3}$ (c) $\dfrac{3}{2}$ (d) $-\dfrac{3}{2}$

9. Write the reciprocal of $(^{-4}\!/_9 \times \,^3\!/_5) + (^{11}\!/_2 \times \,^2\!/_3)$.

(a) $^{12}\!/_5$ (b) $^{33}\!/_5$ (c) $^{17}\!/_5$ (d) $^{5}\!/_{17}$

10. Divide the sum of $^{11}\!/_5$ and $^{19}\!/_7$ by the product of $^{-3}\!/_5$ and $^{1}\!/_2$, then we get

(a) $19^3\!/_5$ (b) $-16^8\!/_{21}$ (c) $^{33}\!/_7$ (d) $^{323}\!/_{21}$

<div align="center">SECTION – B   (1 x 10 = 10 Marks)</div>

11. What should be added to -5/4 to get -1?

12. What should be subtracted from -5/4 to get -1?

13. Find the additive inverse of

  a) - 5/9   b) 3

14. What is the Multiplicative identity for rational numbers?

15. Find the multiplicative inverse of

  a) 7/9   b) 1/ 3

16. How many reciprocals does zero have?

17. What is the reciprocal of a?

18. What is the product of 7/8 and (-4/21)?

19. What is the product of (-7/8) and 4/21?

20. Multiply the negative of 2/3 by the inverse of 9/7.

<div align="center">SECTION – C   (2 x 10 = 20 M)</div>

21. Find $\dfrac{-2}{3} \times \dfrac{3}{5} + \dfrac{5}{2} - \dfrac{3}{5} \times \dfrac{1}{6}$ using distributive property.

22. Is $\dfrac{8}{9}$ the multiplicative inverse of $\left(-1\dfrac{1}{8}\right)$? Why or Why not?

23. Is 0.4 the multiplicative inverse of $4\dfrac{1}{4}$? Why or why not?

24. Find the multiplicative inverse of

  a) -7/9   b) 1/ (-3)   c) -3

25. If the cost of 4½litres of milk is ₹89½, find the cost of 1 litre of milk.

26. The additive inverse of $\dfrac{-5}{7}$ is --------- and multiplicative inverse of $\dfrac{(-5)}{8} \times \dfrac{2}{3}$ is -----

27. Multiply 6/13 by reciprocal of (-7/162).

28. Divide the sum of $^{-5}\!/_7$ and $^{-3}\!/_2$ by the product of $^9\!/_2$ and $^3\!/_7$.

29. Find 3/7 + (-6/11) + (-8/21) + (5/22)

30. (i) What should be subtracted from -2 to get 3/8?

   (ii) What should be added to -2 to get 3/8 ?

SECTION – D   **(3 x 5 = 15 M)**

31. Simplify $^{34}\!/_5 \times {}^{25}\!/_{12} + (^{-11}\!/_6)$.

32. If $a = \dfrac{-2}{3}$, $b = \dfrac{2}{-5}$ and $c = \dfrac{-3}{-4}$. Verify that $a(b + c) = (a \times b) + (a \times c)$

33. Vijaya had a certain amount of money in her purse. She spent ₹ $20\dfrac{1}{4}$ in the school canteen, bought a gift worth ₹ $35\dfrac{3}{4}$ and gave ₹ $40\dfrac{1}{2}$ to her friend. How much she have to begin with?

34. Verify that $x \times (y \times z) = (x \times y) \times z$. Taking $x = \dfrac{-3}{4}$, $y = \dfrac{2}{3}$ and $z = \dfrac{4}{5}$,

35. Using appropriate properties find:

$(i) \ -\dfrac{2}{3} \times \dfrac{3}{5} + \dfrac{5}{2} - \dfrac{3}{5} \times \dfrac{1}{6}$

$(ii) \ \dfrac{2}{5} \times \left(\dfrac{-3}{7} \right) - \dfrac{1}{6} \times \dfrac{3}{2} + \dfrac{1}{14} \times \dfrac{2}{5}$

SECTION – E   **(5 x 5 = 25 M)**

36. (i) A window curtain is $30^1\!/_5$ cm long has a hem of $2^4\!/_5$ cm. How long will the skirt be if the hem is let down?

   (ii) One-third of a group of people are men. If the number of women is 200 more than the men, find the total number of people.

37 (i) Write 2/3, -4/9, -8/11 in ascending order.

   (ii) Write 2/3, -4/9, -8/11 in descending order.

38. Fill in the blanks:

   (i) The product of a number and its reciprocal is _____.

   (ii) The rational number _____ has no reciprocal.

   (iii) The reciprocal of the reciprocal of a number (x) is _____.

   (iv) The rational number _____ is neither positive nor negative.

   (v) _____ is the only rational number which is equals its additive inverse.

39. Write:

(i) A rational number which has no reciprocal.

(ii) A rational number whose product with a given rational number is equal to the given rational number.

(iii) A rational number which is equal to its reciprocal.

(iv) Which property allows us to compute

$$\frac{1}{3} \times \left(6 \times \frac{4}{3}\right) \text{ as } \left(\frac{1}{3} \times 6\right) \times \frac{4}{3}$$

(v) Cost of $3\frac{2}{5}$ metre of cloth is ₹$88\frac{1}{2}$. What is the cost of 1 metre of cloth?

40. (i) Divide the sum of $\frac{3}{7}$ and $-5\frac{1}{4}$ by $-\frac{1}{4}$.

(ii) The product of two rational numbers is - 9. If one of these numbers is $-7\frac{1}{4}$, find the other.