

**SECTION – A**

Questions 1 to 6 carry 1 mark each.

1. The standard form of  $-48/60$  is  
 (a)  $48/60$                       (b)  $-60/48$                       (c)  $-4/5$                       (d)  $-4/-5$

Ans: (c)  $-4/5$

The standard form of  $-48/60$  is  $= (-4/5)$

Divide both numerator and denominator by 12  $= -4/5$

2. Find x such that  $\frac{13}{6} = \frac{-65}{x}$   
 (a)  $-30$     (b)  $30$                       (c)  $-6$                       (d) none of these

Ans: (a)  $-30$

3. Find x such that  $\frac{-3}{8}$  and  $\frac{x}{-24}$  are equivalent rational numbers.  
 (a)  $3$     (b)  $9$                       (c)  $8$                       (d) none of these

Ans: (b)  $9$

4. Fill in the boxes with the correct symbol:  $\frac{-4}{5} \boxed{\dots} \frac{-5}{7}$   
 (a)  $>$     (b)  $<$                       (c)  $=$                       (d) none of these

Ans: (b)  $<$

5. Write the next rational number in the pattern:  $\frac{-3}{5}, \frac{-6}{10}, \frac{-9}{15}, \frac{-12}{20}, \dots$   
 (a)  $\frac{12}{25}$     (b)  $\frac{15}{25}$                       (c)  $\frac{-15}{25}$                       (d) none of these

Ans: (c)  $\frac{-15}{25}$

6. Rewrite the rational number  $\frac{44}{-72}$  in the simplest form.  
 (a)  $\frac{22}{-36}$     (b)  $\frac{11}{-18}$                       (c)  $\frac{11}{18}$                       (d) none of these

Ans: (b)  $\frac{11}{-18}$

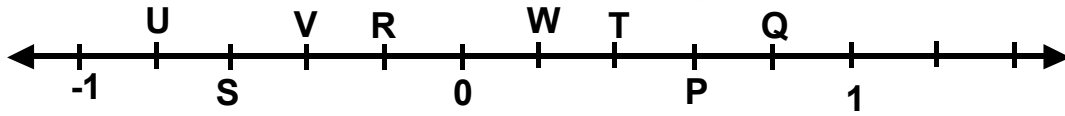
**SECTION – B(CCT Questions)**

Questions 7 to 10 carry 1 mark each.

**CCT Question**

In Maths, a rational number is a type of real number, which is in the form of  $p/q$  where  $q$  is not equal to zero. Any fraction with non-zero denominators is a rational number.

Aditya is studying in Class VII and he was drawing the points P, Q, R, S, T, U and V on the number line such that,  $US = SV = VR$ , and  $WT = TP = PQ$ .



Answer the following questions based on the above information:

7. The rational number represented by Q

- (a)  $\frac{3}{5}$                       (b)  $\frac{2}{5}$                       (c)  $\frac{4}{5}$                       (d) none of these

Ans: (c)  $\frac{4}{5}$

8. The rational number represented by R

- (a)  $\frac{-3}{5}$                       (b)  $\frac{-2}{5}$                       (c)  $\frac{-4}{5}$                       (d) none of these

Ans: (d) none of these

9. The rational number represented by S

- (a)  $\frac{-3}{5}$                       (b)  $\frac{-2}{5}$                       (c)  $\frac{-4}{5}$                       (d) none of these

Ans: (a)  $\frac{-3}{5}$

10. The rational number represented by T

- (a)  $\frac{3}{5}$                       (b)  $\frac{2}{5}$                       (c)  $\frac{4}{5}$                       (d) none of these

Ans: (b)  $\frac{2}{5}$

### SECTION – C

Questions 11 to 13 carry 2 marks each.

11. Add (i)  $\frac{7}{8}$  and  $\frac{-5}{8}$     (ii)  $\frac{4}{-5}$  and  $\frac{3}{5}$

Ans:

(i)  $\frac{7}{8} + \frac{-5}{8} = \frac{7+(-5)}{8} = \frac{2}{8} = \frac{1}{4}$ .

(ii) We first express  $\frac{4}{-5}$  as a rational number with positive denominator,

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

$$\therefore \frac{4}{-5} + \frac{3}{5} = \frac{-4}{5} + \frac{3}{5} = \frac{-4+3}{5} = \frac{-1}{5}$$

12. What should be added to  $\frac{-7}{12}$  so as to get  $\frac{9}{16}$ ?

Ans: Sum of the given numbers =  $\frac{9}{16}$

$$\text{The given number} = \frac{-7}{12}$$

$$\therefore \text{Required number} = \text{Sum} - \text{Given number}$$

$$= \frac{9}{16} - \left( -\frac{7}{12} \right) = \frac{9}{16} + \frac{7}{12} = \frac{9 \times 3 + 7 \times 4}{48} = \frac{27 + 28}{48} = \frac{55}{48}$$

13. What number should be subtracted from  $\frac{-7}{8}$  so as to get  $\frac{5}{12}$ ?

$$\text{Ans: Difference of the given numbers and the required number} = \frac{5}{12}$$

$$\text{The given number} = \frac{-7}{8}$$

$$\therefore \text{Required number} = \text{Given number} - \text{Difference}$$

$$= \frac{-7}{8} - \frac{5}{12} = \frac{-7 \times 3 - 5 \times 2}{24} = \frac{-21 - 10}{24} = \frac{-31}{24}$$

### SECTION – D

Questions 14 to 17 carry 3 marks each.

14. Arrange the rational numbers  $\frac{-3}{7}, \frac{5}{-14}, -\frac{7}{12}$  in ascending order.

Ans:

$$\text{LCM of 7, 14 and 12} = 7 \times 2 \times 6 = 84.$$

$$\frac{-3}{7} = \frac{-3 \times 12}{7 \times 12} = \frac{-36}{84}, \quad \frac{5}{-14} = \frac{-5 \times 6}{14 \times 6} = \frac{-30}{84}, \quad \frac{-7}{12} = \frac{-7 \times 7}{12 \times 7} = \frac{-49}{84}$$

$$\text{Since, } -49 < -36 < -30, \text{ therefore, } \frac{-49}{84} < \frac{-36}{84} < \frac{-30}{84}$$

$$\therefore \frac{-7}{12} < \frac{-3}{7} < \frac{5}{-14}, \text{ i.e., } -\frac{7}{12}, \frac{-3}{7} \text{ and } \frac{5}{-14} \text{ are in ascending order.}$$

15. Subtract: (i)  $\frac{7}{8}$  from  $\frac{5}{12}$  (ii)  $\frac{-4}{9}$  from  $\frac{-7}{18}$

Ans:

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

$$= \frac{5 \times 2 + (-7) \times 3}{24} = \frac{10 - 21}{24} = \frac{-11}{24}$$

$$(ii) \frac{-7}{8} - \frac{-4}{9} = \frac{-7}{8} + \left( -\left( \frac{-4}{9} \right) \right)$$

$$= \frac{-7}{8} + \frac{4}{9} = \frac{-7 \times 9 + 4 \times 8}{72} = \frac{-63 + 32}{72} = \frac{-31}{72}$$

16. Satpal walks  $\frac{2}{3}$  km from a place P, towards east and then from there  $1\frac{5}{7}$  km towards west.

Where will he be now from P?

Ans: Let the distance travelled towards east by positive sign.

So, the distances towards west would be denoted by negative sign.

Thus, distance of Satpal from the point P would be

$$\begin{aligned} \frac{2}{3} + \left(-1\frac{5}{7}\right) &= \frac{2}{3} + \frac{(-12)}{7} = \frac{2 \times 7}{3 \times 7} + \frac{(-12) \times 3}{7 \times 3} \\ &= \frac{14 - 36}{21} = \frac{-22}{21} = -1\frac{1}{21} \end{aligned}$$

Since it is negative, it means Satpal is at a distance  $1\frac{1}{21}$  km towards west of P.

17. Simplify:  $\frac{8}{-15} + \frac{7}{20} - \frac{-11}{35} + \frac{1}{5}$

Ans:

$$\begin{aligned} \frac{8}{-15} + \frac{7}{20} - \frac{-11}{35} + \frac{1}{5} &= -\frac{8}{15} + \frac{7}{20} + \frac{11}{35} + \frac{1}{5} \\ &= \frac{-8 \times 28 + 7 \times 21 + 11 \times 12 + 1 \times 84}{420} = \frac{-224 + 147 + 132 + 84}{420} \\ &= \frac{-224 + 363}{420} = \frac{139}{420} \end{aligned}$$

### SECTION – E

Questions 18 to 20 carry 4 marks each.

18. Simplify:  $\left(\frac{-5}{9} \times \frac{72}{-125}\right) - \left(\frac{11}{17} \times \frac{34}{55}\right) + \left(\frac{28}{-13} \times \frac{-52}{21}\right)$

Ans:

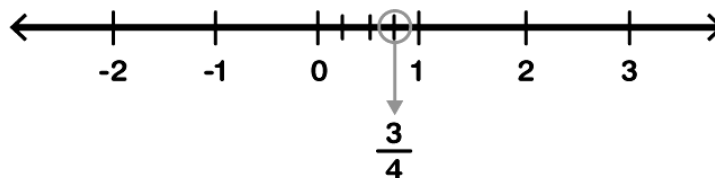
$$\begin{aligned} &\left(\frac{-5}{9} \times \frac{72}{-125}\right) - \left(\frac{11}{17} \times \frac{34}{55}\right) + \left(\frac{28}{-13} \times \frac{-52}{21}\right) \\ &= \frac{1\cancel{5} \times 7\cancel{2}^8}{1\cancel{9} \times 12\cancel{5}_{25}} - \frac{1\cancel{11} \times 3\cancel{4}^2}{1\cancel{17} \times 5\cancel{5}_5} + \frac{4\cancel{28} \times 5\cancel{2}^4}{1\cancel{13} \times 2\cancel{1}_3} \\ &= \frac{1 \times 8}{1 \times 25} - \frac{1 \times 2}{1 \times 5} + \frac{4 \times 4}{1 \times 3} = \frac{8}{25} - \frac{2}{5} + \frac{16}{3} \\ &= \frac{8 \times 3 - 2 \times 15 + 16 \times 25}{75} = \frac{24 - 30 + 400}{75} = \frac{424 - 30}{75} = \frac{394}{75} \end{aligned}$$

19. Draw the number line and represent the following rational numbers on it:

(i)  $\frac{3}{4}$                       (ii)  $\frac{-5}{8}$

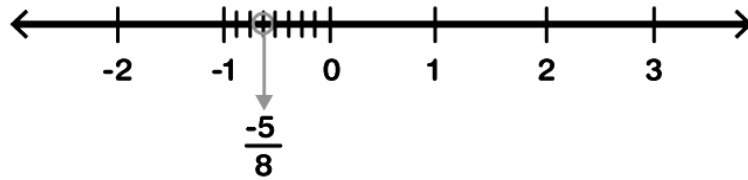
Ans: (i) We know that  $\frac{3}{4}$  is greater than 0 and less than 1.

∴ it lies between 0 and 1. It can be represented on the number line as,



(ii) We know that  $-\frac{5}{8}$  is less than 0 and greater than -1.

∴ it lies between 0 and -1. It can be represented on the number line as,



20. Find: (i)  $\frac{6}{25} \div \frac{3}{10}$  (ii)  $\frac{-9}{44} \div \frac{3}{11}$

Ans:

$$(i) \frac{6}{25} \div \frac{3}{10} = \frac{6}{25} \times \frac{10}{3} = \frac{\cancel{2}^2 \times \cancel{10}^2}{5 \cancel{25}^5 \times \cancel{3}_1} = \frac{2 \times 2}{5 \times 1} = \frac{4}{5}$$

$$(ii) \frac{-9}{44} \div \frac{3}{11} = \frac{-9}{44} \times \frac{11}{3} = \frac{\cancel{3}^3 \times \cancel{11}^1}{4 \cancel{44}^4 \times \cancel{3}_1} = \frac{-3 \times 1}{4 \times 1} = \frac{-3}{4}$$

