

### VIII Test-4

1) If  $a = \frac{2}{3}$ ,  $b = \frac{4}{5}$  and  $c = -\frac{5}{6}$ , verify and name the property

(i)  $a + (b + c) = (a + b) + c$

(ii)  $a \times (b \times c) = (a \times b) \times c$

2) Using appropriate property, find  $\frac{4}{7} \times -\frac{5}{6} + \frac{7}{3} + \frac{2}{3} \times -\frac{4}{7}$

3) Find the sum of additive inverse and multiplicative inverse of 10.  
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## VIII Test-4 (Solutions)

$$\begin{aligned} 1) \text{ (i) LHS, } a + (b + c) &= \frac{2}{3} + \left( \frac{4}{5} + \frac{-5}{6} \right) = \frac{2}{3} + \left( \frac{4 \times 6}{5 \times 6} - \frac{5 \times 5}{6 \times 5} \right) \\ &= \frac{2}{3} + \left( \frac{24 - 25}{30} \right) = \frac{2 \times 10}{3 \times 10} + \left( \frac{-1}{30} \right) \\ &= \frac{20 - 1}{30} = \frac{19}{30} \end{aligned}$$

$$\begin{aligned} \text{RHS, } (a + b) + c &= \left( \frac{2 \times 5}{3 \times 5} + \frac{4 \times 3}{5 \times 3} \right) + \frac{-5}{6} = \frac{10 + 12}{15} - \frac{5}{6} \\ &= \frac{22 \times 2}{15 \times 2} - \frac{5 \times 5}{6 \times 5} = \frac{44 - 25}{30} = \frac{19}{30} \end{aligned}$$

$\therefore$  LHS = RHS. Hence verified

Property used: associative property of addition of rational numbers.

$$\text{(ii) LHS, } a \times (b \times c) = \frac{2}{3} \times \left( \frac{4}{5} \times \frac{-5}{6} \right) = \frac{2}{3} \times \frac{-2}{3} = \frac{-4}{9}$$

$$\text{RHS, } (a \times b) \times c = \left( \frac{2}{3} \times \frac{4}{5} \right) \times \frac{-5}{6} = \frac{4 \times 2}{15} \times \frac{-5}{6} = \frac{-4}{9}$$

$\therefore$  LHS = RHS. Hence verified

Property used: associative property of multiplication of rational numbers.

$$2) \left( \frac{4}{7} \times \frac{-5}{6} \right) + \frac{7}{3} + \left( \frac{2}{3} \times \frac{-4}{7} \right)$$

$$= \left( \frac{4}{7} \times \frac{-5}{6} \right) + \left( \frac{2}{3} \times \frac{-4}{7} \right) + \frac{7}{3}$$

$$= \frac{4}{7} \times \left( \frac{-5}{6} + \frac{-2 \times 2}{3 \times 2} \right) + \frac{7}{3}$$

$$= \frac{4}{7} \times \left( \frac{-5 - 4}{6} \right) + \frac{7}{3}$$

$$= \frac{4^2}{7} \times \frac{-9^3}{6^3} + \frac{7}{3} = \frac{-6 \times 3}{7 \times 3} + \frac{7 \times 1}{3 \times 1} = \frac{-18 + 49}{21} = \frac{31}{21}$$

3) additive inverse of 10 = -10  
multiplicative inverse of 10 =  $\frac{1}{10}$

$$\therefore \text{Sum} = \frac{-10 \times 10}{1 \times 10} + \frac{1}{10} = \frac{-100+1}{10} = -\frac{99}{10} = \underline{\underline{-9.9}}$$

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