Exercise 1D

Q7

Answer :

(i)

$$LHS = \frac{3}{7} \times \left(\frac{5}{6} + \frac{12}{13} \right)$$

$$= \frac{3}{7} \times \left(\frac{65+72}{78} \right)$$

$$= \frac{3}{7} \times \frac{137}{78}$$

$$= \frac{137}{182}$$

$$RHS = \left(\frac{3}{7} \times \frac{5}{6} \right) + \left(\frac{12}{13} \times \frac{3}{7} \right)$$

$$= \frac{3 \times 5}{7 \times 6} + \frac{12 \times 3}{13 \times 7}$$

$$= \frac{15}{42} + \frac{36}{91}$$

$$= \frac{195+216}{546}$$

$$= \frac{411}{546}$$

$$= \frac{137}{182}$$

$$\therefore \frac{3}{7} \times \left(\frac{5}{6} + \frac{12}{13} \right) = \left(\frac{3}{7} \times \frac{5}{6} \right) + \left(\frac{3}{7} \times \frac{12}{13} \right)$$

(ii)

$$LHS = \frac{-15}{4} \times \left(\frac{3}{7} + \frac{-12}{5} \right)$$

$$= \frac{-15}{4} \times \left(\frac{15-84}{35} \right)$$

$$= \frac{-15}{4} \times \frac{-69}{35}$$

$$= \frac{(-15) \times (-69)}{140}$$

$$= \frac{1035}{140}$$

$$= \frac{207}{28}$$

$$\text{RHS} = \left(\frac{-15}{4} \times \frac{3}{7}\right) + \left(\frac{-15}{4} \times \frac{-12}{5}\right)$$

$$= \frac{(-15) \times 3}{4 \times 7} + \frac{(-15) \times (-12)}{4 \times 5}$$

$$= \frac{-45}{28} + \frac{180}{20}$$

$$= \frac{-225 + 1260}{140}$$

$$= \frac{1035}{140}$$

$$= \frac{207}{28}$$

$$\therefore \frac{-15}{4} \times \left(\frac{3}{7} + \frac{-12}{5}\right) = \left(\frac{-15}{4} \times \frac{3}{7}\right) + \left(\frac{-15}{4} \times \frac{-12}{5}\right)$$

(iii)

$$\left(\frac{-8}{3} + \frac{-13}{12}\right) \times \frac{5}{6} = \left(\frac{-8}{3} \times \frac{5}{6}\right) + \left(\frac{-13}{12} \times \frac{5}{6}\right)$$

$$\text{LHS} = \left(\frac{-8}{3} + \frac{-13}{12}\right) \times \frac{5}{6}$$

$$= \frac{-32 - 13}{12} \times \frac{5}{6}$$

$$= \frac{-45}{12} \times \frac{5}{6}$$

$$= \frac{-45 \times 5}{12 \times 6}$$

$$= \frac{-225}{72}$$

$$= \frac{-225 \div 9}{72 \div 9}$$

$$= -\frac{25}{8}$$

$$\text{RHS} = \left(\frac{-8}{3} \times \frac{5}{6}\right) + \left(\frac{-13}{12} \times \frac{5}{6}\right)$$

$$= \frac{-8 \times 5}{3 \times 6} + \frac{(-13) \times 5}{12 \times 6}$$

$$= \frac{-40}{18} + \frac{-65}{72}$$

$$= \frac{-160 - 65}{72}$$

$$= \frac{-225}{72}$$

$$= \frac{-225 \div 9}{72 \div 9}$$

$$= \frac{-25}{8}$$

$$\therefore \left(\frac{-8}{3} + \frac{-13}{12}\right) \times \frac{5}{6} = \left(\frac{-8}{3} \times \frac{5}{6}\right) + \left(\frac{-13}{12} \times \frac{5}{6}\right)$$

(iv)

$$\frac{-16}{7} \times \left(\frac{-8}{9} + \frac{-7}{6}\right) = \left(\frac{-16}{7} \times \frac{-8}{9}\right) + \left(\frac{-16}{7} \times \frac{-7}{6}\right)$$

$$\text{LHS} = \frac{-16}{7} \times \left(\frac{-8}{9} + \frac{-7}{6}\right)$$

$$= \frac{-16}{7} \times \left(\frac{-16-21}{18}\right)$$

$$= \frac{-16}{7} \times \frac{-37}{18}$$

$$= \frac{592}{126}$$

$$= \frac{296}{63}$$

$$\text{RHS} = \left(\frac{-16}{7} \times \frac{-8}{9}\right) + \left(\frac{-16}{7} \times \frac{-7}{6}\right)$$

$$= \frac{128}{63} + \frac{112}{42}$$

$$= \frac{256+336}{126}$$

$$= \frac{592}{126}$$

$$= \frac{296}{63}$$

$$\therefore \frac{-16}{7} \times \left(\frac{-8}{9} + \frac{-7}{6}\right) = \left(\frac{-16}{7} \times \frac{-8}{9}\right) + \left(\frac{-16}{7} \times \frac{-7}{6}\right)$$

Q8

Answer :

Commutative property

Associative property

Distributive property

Property of multiplicative identity

Property of multiplicative inverse

Multiplicative property of 0

Q9

Answer :

(i) 1

(ii) no

(iii) 1; -1

(iv) not

(v) 1a

(vi) a

(vii) positive

(viii) negative

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