Operations on Rational Numbers Ex 5.3 Q1

Answer :

$$\text{(i)}\ \frac{7}{11}\times\frac{5}{4}=\frac{7\times5}{11\times4}=\frac{35}{44}$$

$$\text{(ii)}\ \frac{5}{7}\times\frac{-3}{4}=\frac{5\times-3}{7\times4}=\frac{-15}{28}$$

$$\text{(iii)}\ \frac{-2}{9}\times\frac{5}{11}=\frac{-2\times5}{9\times11}=\frac{-10}{99}$$

$$\text{(iv)}\ \frac{-3}{17}\times\frac{-5}{-4}=\frac{-3\times5}{17\times-4}=\frac{-15}{68}$$

Operations on Rational Numbers Ex 5.3 Q2

Answer :

$$\text{(i)}\ \frac{-5}{17}\times\frac{51}{-60}=\frac{-5}{17}\times\frac{17\times3}{-5\times3\times4}=\frac{1}{4}$$

$$\text{(ii)}\ \frac{-6}{11}\times\frac{-55}{36}=\frac{-6}{11}\times\frac{-5\times11}{6\times6}=\frac{5}{6}$$

$$\text{(iii)}\ \frac{-8}{25}\times\frac{-5}{16}=\frac{-8}{5\times5}\times\frac{-5}{8\times2}=\frac{1}{10}$$

$$\text{(iv)}\ \frac{6}{7}\times\frac{-49}{36}=\frac{6}{7}\times\frac{-7\times7}{6\times6}=\frac{-7}{6}$$

Operations on Rational Numbers Ex 5.3 Q3

Answer :

$$\text{(i)}\ \frac{-16}{21}\times\frac{14}{5}=\frac{-16\times14}{21\times5}=\frac{-32}{15}$$

$$\text{(ii)}\ \frac{7}{6}\times\frac{-3}{28}=\frac{7\times-3}{6\times28}=\frac{-1}{8}$$

$$\text{(iii)}\ \frac{-19}{36}\times16=\frac{-19\times16}{36}=\frac{-76}{9}$$

$$\text{(iv)}\ \frac{-13}{9}\times\frac{27}{-26}=\frac{-13\times27}{9\times-26}=\frac{3}{2}$$

Operations on Rational Numbers Ex 5.3 Q4

Answer :

$$\text{(i)}\ \left(-5\times\tfrac{2}{15}\right)-\left(-6\times\tfrac{2}{9}\right)=\left(-5\times\tfrac{2}{3\times5}\right)-\left(-6\times\tfrac{2}{3\times3}\right)$$
$$=\left(\tfrac{-2}{3}\right)-\left(\tfrac{-4}{3}\right)=\tfrac{-2+4}{3}=\tfrac{2}{3}$$
$$\text{(ii)}\ \left(\tfrac{-9}{4}\times\tfrac{5}{3}\right)+\left(\tfrac{13}{2}\times\tfrac{5}{6}\right)=\left(\tfrac{-3\times3}{4}\times\tfrac{5}{3}\right)+\left(\tfrac{65}{12}\right)$$
$$=\left(\tfrac{-15}{4}\right)+\left(\tfrac{65}{12}\right)=\tfrac{-15\times3}{4\times3}+\tfrac{65}{12}=\tfrac{-45+65}{12}=\tfrac{20}{12}=\tfrac{5\times4}{3\times4}=\tfrac{5}{3}$$

Operations on Rational Numbers Ex 5.3 Q5

Answer :

$$\text{(i)}\ \left(\tfrac{13}{9}\times\tfrac{-15}{2}\right)+\left(\tfrac{7}{3}\times\tfrac{8}{5}\right)+\left(\tfrac{3}{5}\times\tfrac{1}{2}\right)$$
$$=\left(\tfrac{13}{3\times3}\times\tfrac{-3\times5}{2}\right)+\left(\tfrac{56}{15}\right)+\left(\tfrac{3}{10}\right)=\tfrac{-65}{6}+\tfrac{56}{15}+\tfrac{3}{10}$$
$$=\tfrac{-65\times5}{6\times5}+\tfrac{56\times2}{15\times2}+\tfrac{3\times3}{10\times3}=\tfrac{-325}{30}+\tfrac{112}{30}+\tfrac{9}{30}=\tfrac{-325+112+9}{30}=\tfrac{-204}{30}=\tfrac{-34}{5}$$
$$\text{(ii)}\ \left(\tfrac{3}{11}\times\tfrac{5}{6}\right)-\left(\tfrac{9}{12}\times\tfrac{4}{3}\right)+\left(\tfrac{5}{13}\times\tfrac{6}{15}\right)$$
$$=\left(\tfrac{3}{11}\times\tfrac{5}{2\times3}\right)-\left(\tfrac{3\times3}{4\times3}\times\tfrac{4}{3}\right)+\left(\tfrac{5}{13}\times\tfrac{3\times2}{5\times3}\right)=\tfrac{5}{22}-\tfrac{1}{1}+\tfrac{2}{13}$$
$$=\tfrac{5\times13}{22\times13}-\tfrac{1\times286}{1\times286}+\tfrac{2\times22}{13\times22}=\tfrac{65}{286}-\tfrac{286}{286}+\tfrac{44}{286}=\tfrac{65-286+44}{286}=\tfrac{-177}{286}$$

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