

**RD SHARMA**

**Solutions**

**Class 7 Maths**

**Chapter 5**

**Ex 5.4**

**Q1. Divide:**

(i) 1 by  $\frac{1}{2}$

$$\begin{aligned} 1 \div \frac{1}{2} \\ &= 1 \times 2 \\ &= 2 \end{aligned}$$

(ii) 5 by  $\frac{-5}{7}$

$$\begin{aligned} 5 \div \frac{-5}{7} \\ &= 5 \times \frac{-7}{5} \\ &= -7 \end{aligned}$$

(iii)  $\frac{-3}{4}$  by  $\frac{9}{-16}$

$$\begin{aligned} \frac{-3}{4} \div \frac{9}{-16} \\ &= \frac{-3}{4} \div \frac{-9}{16} \\ &= \frac{-3}{4} \times \frac{-16}{9} \\ &= \frac{-4}{-3} \\ &= \frac{4}{3} \end{aligned}$$

(iv)  $\frac{-7}{8}$  by  $\frac{-21}{16}$

$$\begin{aligned} \frac{-7}{8} \div \frac{-21}{16} \\ &= \frac{-7}{8} \times \frac{-16}{21} \\ &= \frac{2}{3} \end{aligned}$$

(v)  $\frac{7}{-4}$  by  $\frac{63}{64}$

$$\begin{aligned} \frac{7}{-4} \div \frac{63}{64} \\ &= \frac{7}{-4} \times \frac{64}{63} \\ &= \frac{-16}{9} \end{aligned}$$

(vi) 0 by  $\frac{-7}{5}$

$$\begin{aligned} 0 \div \frac{-7}{5} \\ &= 0 \times \frac{-5}{7} \\ &= 0 \end{aligned}$$

(vii)  $\frac{-3}{4}$  by -6

$$\begin{aligned} \frac{-3}{4} \div -6 \\ &= \frac{-3}{4} \times \frac{-1}{6} \\ &= \frac{1}{8} \end{aligned}$$

(viii)  $\frac{2}{3}$  by  $\frac{-7}{12}$

$$\begin{aligned} \frac{2}{3} \div \frac{-7}{12} \\ &= \frac{2}{3} \times \frac{-12}{7} \\ &= \frac{-8}{7} \end{aligned}$$

**Q2. Find the value and express as a rational number in standard form:**

(i)  $\frac{2}{5} \div \frac{26}{15}$

$$\begin{aligned} \frac{2}{5} \div \frac{26}{15} \\ &= \frac{2}{5} \times \frac{15}{26} \\ &= \frac{3}{13} \end{aligned}$$

(ii)  $\frac{10}{3} \div \frac{-35}{12}$

$$\begin{aligned} & \frac{10}{3} \div \frac{-35}{12} \\ & \frac{10}{3} \times \frac{-12}{35} \\ & = \frac{-40}{35} \\ & = \frac{-8}{7} \end{aligned}$$

(iii)  $-6 \div \frac{-8}{17}$

$$\begin{aligned} & -6 \div \frac{-8}{17} \\ & = -6 \times \frac{-17}{8} \\ & = \frac{102}{8} \\ & = \frac{51}{4} \end{aligned}$$

(iv)  $\frac{40}{98} \div -20$

$$\begin{aligned} & \frac{40}{98} \div -20 \\ & = \frac{40}{98} \times \frac{-1}{20} \\ & = \frac{-2}{98} \\ & = \frac{-1}{49} \end{aligned}$$

**Q3. The product of two rational numbers is 15. If one of the numbers is -10, find the other.**

Let the number to be found be x

$$\begin{aligned} x \times -10 &= 15 \\ x &= \frac{15}{-10} \\ x &= \frac{3}{-2} \\ x &= \frac{-3}{2} \end{aligned}$$

Hence the number is

$$x = \frac{-3}{2}$$

**Q4. The product of two rational numbers is  $\frac{-8}{9}$ . If one of the numbers is  $\frac{-4}{15}$ , find the other.**

Let the number to be found be x

$$\begin{aligned} x \times \frac{-4}{15} &= \frac{-8}{9} \\ x &= \frac{-8}{9} \div \frac{-4}{15} \\ x &= \frac{-8}{9} \times \frac{15}{-4} \\ x &= \frac{-8 \times 15}{9 \times -4} \\ x &= \frac{-120}{-36} \\ x &= \frac{120}{36} \\ x &= \frac{10}{3} \end{aligned}$$

Hence the number is

$$x = \frac{10}{3}$$

**Q5. By what number should we multiply  $\frac{-1}{6}$  so that the product may be  $\frac{-23}{9}$ ?**

Let the number to be found be x

$$\begin{aligned}
 X \times \frac{-1}{6} &= \frac{-23}{9} \\
 -X &= \frac{-23}{9} \times 6 \\
 -X &= \frac{-23 \times 6}{9} \\
 -X &= \frac{-138}{9} \\
 X &= \frac{138}{9} \\
 X &= \frac{46}{3}
 \end{aligned}$$

Hence the number is  $X = \frac{46}{3}$

**Q6.** By what number should we multiply  $\frac{-15}{28}$  so that the product may be  $\frac{-5}{7}$ ?

Let the number to be found be x

$$\begin{aligned}
 X \times \frac{-15}{28} &= \frac{-5}{7} \\
 X &= \frac{-5}{7} \div \frac{-15}{28} \\
 X &= \frac{-5}{7} \times \frac{-28}{15} \\
 X &= \frac{-8}{9} \times \frac{15}{-4} \\
 X &= \frac{4}{3}
 \end{aligned}$$

Hence the number is  $X = \frac{4}{3}$

**Q7.** By what number should we multiply  $\frac{-8}{13}$  so that the product may be 24?

Let the number to be found be x

$$\begin{aligned}
 X \times \frac{-8}{13} &= 24 \\
 X &= 24 \div \frac{-8}{13} \\
 X &= 24 \times \frac{13}{-8} \\
 X &= -3 \times 13 \\
 X &= -39
 \end{aligned}$$

Hence the number is  $X = -39$

**Q8.** By what number should  $\frac{-3}{4}$  be multiplied in order to produce  $\frac{-2}{3}$ ?

Let the number to be found be x

$$\begin{aligned}
 X \times \frac{-8}{13} &= 24 \\
 X &= 24 \div \frac{-8}{13} \\
 X &= 24 \times \frac{13}{-8} \\
 X &= -3 \times 13 \\
 X &= -39
 \end{aligned}$$

Hence the number is  $X = -39$

**Q9.** Find  $(x + y) \div (x - y)$ , if

(i)  $x = \frac{2}{3}$ ,  $y = \frac{3}{2}$

$$\begin{aligned}
& (x + y) \div (x - y) \\
&= \left(\frac{2}{3} + \frac{3}{2}\right) \div \left(\frac{2}{3} - \frac{3}{2}\right) \\
&= \left(\frac{4+9}{6}\right) \div \left(\frac{4-9}{6}\right) \\
&= \left(\frac{4+9}{6}\right) \times \left(\frac{6}{4-9}\right) \\
&= \left(\frac{4+9}{4-9}\right) \\
&= \left(\frac{13}{-5}\right) \\
&= \left(\frac{-13}{5}\right)
\end{aligned}$$

(ii)  $x = \frac{2}{5}, y = \frac{1}{2}$

$$\begin{aligned}
& (x + y) \div (x - y) \\
&= \left(\frac{2}{5} + \frac{1}{2}\right) \div \left(\frac{2}{5} - \frac{1}{2}\right) \\
&= \left(\frac{4+5}{10}\right) \div \left(\frac{4-5}{10}\right) \\
&= \left(\frac{4+5}{10}\right) \times \left(\frac{10}{4-5}\right) \\
&= \left(\frac{4+5}{4-5}\right) \\
&= \left(\frac{9}{-1}\right) \\
&= \left(\frac{-9}{1}\right) \\
&= 9
\end{aligned}$$

(iii)  $x = \frac{5}{4}, y = \frac{-1}{3}$

$$\begin{aligned}
& (x + y) \div (x - y) \\
&= \left(\frac{5}{4} + \frac{-1}{3}\right) \div \left(\frac{5}{4} - \frac{-1}{3}\right) \\
&= \left(\frac{5 \times 3 - 1 \times 4}{12}\right) \div \left(\frac{5 \times 3 + 1 \times 4}{12}\right) \\
&= \left(\frac{5 \times 3 - 1 \times 4}{12}\right) \times \left(\frac{12}{5 \times 3 + 1 \times 4}\right) \\
&= \left(\frac{5 \times 3 - 1 \times 4}{5 \times 3 + 1 \times 4}\right) \\
&= \left(\frac{11}{19}\right)
\end{aligned}$$

**Q10.** The cost of  $7\frac{2}{3}$  metres of rope is Rs.  $12\frac{3}{4}$ . Find its cost per metre.

$7\frac{2}{3}$  metres of rope cost = Rs.  $12\frac{3}{4}$

= Rs.  $\frac{51}{4}$

$7\frac{2}{3} = \frac{23}{3}$

Cost per metre =

$$\begin{aligned}
& \frac{51}{4} \div \frac{23}{3} \\
&= \frac{51}{4} \times \frac{3}{23} \\
&= \frac{153}{92} \\
&= \text{Rs. } 1\frac{61}{92}
\end{aligned}$$

**Q11.** The cost of  $2\frac{1}{3}$  metres of cloth is Rs.  $75\frac{1}{4}$ . Find the cost of cloth per metre.

$2\frac{1}{3}$  metres of rope cost = Rs.  $75\frac{1}{4}$

= Rs.  $\frac{301}{4}$

$2\frac{1}{3} = \frac{7}{3}$

Cost per metre=

$$\begin{aligned} & \frac{301}{4} \div \frac{7}{3} \\ &= \frac{301}{4} \times \frac{3}{7} \\ &= \frac{43 \times 3}{4} \\ &= \frac{129}{4} \\ &= \text{Rs. } 32 \frac{1}{4} \end{aligned}$$

Q12. By what number should  $\frac{-33}{16}$  be divided to get  $\frac{-11}{4}$  ?

$$\begin{aligned} \frac{-33}{16} \div X &= \frac{-11}{4} \\ X &= \frac{-33}{16} \div \frac{-11}{4} \\ X &= \frac{-33}{16} \times \frac{4}{-11} \\ X &= \frac{3}{4} \end{aligned}$$

The number is

$$X = \frac{3}{4}$$

Q13. Divide the sum of  $\frac{-13}{5}$  and  $\frac{12}{7}$  by the product of  $\frac{-31}{7}$  and  $\frac{-1}{2}$

$$\begin{aligned} & \left( \frac{-13}{5} + \frac{12}{7} \right) \div \left( \frac{-31}{7} \times \frac{-1}{2} \right) \\ &= \left( \frac{-13 \times 7}{5 \times 7} + \frac{12 \times 5}{7 \times 5} \right) \div \left( \frac{-31}{7} \times \frac{-1}{2} \right) \\ &= \left( \frac{-91}{35} + \frac{60}{35} \right) \div \left( \frac{31}{14} \right) \\ &= \left( \frac{-91+60}{35} \right) \div \left( \frac{31}{14} \right) \\ &= \left( \frac{-31}{35} \right) \div \left( \frac{31}{14} \right) \\ &= \left( \frac{-31}{35} \right) \times \left( \frac{14}{31} \right) \\ &= \frac{-14}{35} \\ &= \frac{-2}{5} \end{aligned}$$

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Q14. Divide the sum of  $\frac{65}{12}$  and  $\frac{8}{3}$  by their difference.

$$\begin{aligned} & \left( \frac{65}{12} + \frac{8}{3} \right) \div \left( \frac{65}{12} - \frac{8}{3} \right) \\ &= \left( \frac{65}{12} + \frac{8 \times 4}{3 \times 4} \right) \div \left( \frac{65}{12} - \frac{8 \times 4}{3 \times 4} \right) \\ &= \left( \frac{65}{12} + \frac{32}{12} \right) \div \left( \frac{65}{12} - \frac{32}{12} \right) \\ &= \left( \frac{65+32}{12} \right) \div \left( \frac{65-32}{12} \right) \\ &= \left( \frac{65+32}{12} \right) \times \left( \frac{12}{65-32} \right) \\ &= \frac{65+32}{65-32} \\ &= \frac{97}{33} \end{aligned}$$

Q15. If 24 trousers of equal size can be prepared in 54 metres of cloth, what length of cloth is required for each trouser?

Length of cloth required for each trouser =  $\frac{\text{Total length of cloth}}{\text{number of trousers}}$

$$= \frac{54}{24}$$

$$= \frac{9}{4} \text{ metres}$$

$\frac{9}{4}$  metres of cloth is required to make each trouser