RD SHARMA

Solutions

Class 8 Maths

Chapter 1

Ex 1.7

Q-1. Divide:

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

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

(iii) $\frac{-3}{4}$ by $\frac{1}{2}$

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

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

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

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

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

(ix) −4 by $\frac{-3}{5}$

(x) $\frac{-3}{13}$ by $\frac{-4}{65}$

Solution:

(i) $1 \div \frac{1}{2} = 1 \times \frac{2}{1} = 2$

(ii) $5 \div \frac{-5}{7} = 5 \times \frac{7}{-5} = -7$

(iii) $\frac{-3}{4} \div \frac{9}{-16} = \frac{-3}{4} \times \frac{-16}{9} = \frac{4}{3}$

(iv) $\frac{-7}{8} \div \frac{-21}{16} = \frac{-7}{8} \times \frac{-16}{21} = \frac{2}{3}$

(v) $\frac{-7}{4} \div \frac{63}{64} = \frac{7}{-4} \times \frac{64}{63} = \frac{-16}{9}$

(vi) $0 \div \frac{-7}{5} = 0 \times \frac{-5}{7} = 0$

(vii) $\frac{-3}{4} \div -6 = \frac{-3}{4} \times \frac{1}{-6} = \frac{1}{8}$

(viii) $\frac{2}{3} \div \frac{-7}{12} = \frac{2}{3} \times \frac{12}{-7} = \frac{-8}{7}$

(ix) $-4 \div \frac{-3}{5} = -4 \times \frac{5}{-3} = \frac{20}{3}$

(x) $\frac{-3}{13} \div \frac{-4}{65} = \frac{-3}{13} \times \frac{65}{-4} = \frac{15}{4}$

Q-2. Find the value and express as a rational number in standard form:

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

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

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

(iv) $\frac{-40}{99} \div (-20)$

(v) $\frac{-22}{27} \div \frac{-110}{18}$

(vi) $\frac{-36}{125} \div \frac{-3}{75}$

Solution:

(i) $\frac{2}{5} \div \frac{26}{15} = \frac{2}{5} \times \frac{15}{26} = \frac{3}{13}$

(ii) $\frac{10}{3} \div \frac{-35}{12} = \frac{10}{3} \times \frac{12}{-35} = \frac{-8}{7}$

(iii) $-6 \div \frac{-8}{17} = -6 \times \frac{17}{-8} = \frac{51}{4}$

(iv) $\frac{-40}{99} \div (-20) = \frac{-40}{99} \times \frac{1}{-20} = \frac{2}{99}$

(v) $\frac{-22}{27} \div \frac{-110}{18} = \frac{-22}{27} \times \frac{18}{-110} = \frac{2}{15}$

(vi) $\frac{-36}{125} \div \frac{-3}{75} = \frac{-36}{125} \times \frac{75}{-3} = \frac{36}{5}$

Q-3. The product of two rational numbers is 15. If one of the numbers is –10. Find the other number.

Solution:

Let, the other number be x.

So, $x \times (-10) = 15$

$\Rightarrow x = \frac{15}{-10} = \frac{3}{-2}$

So, the other number is $\frac{-3}{2}$.

Q-4. The product of two rational numbers is $\frac{-8}{9}$. If one of the number is $\frac{-4}{15}$, Find the other number.

Solution: Let, the other number be x.

So, $x \times \frac{-4}{15} = \frac{-8}{9}$

$\Rightarrow x = \frac{-8}{9} \div \frac{-4}{15} \Rightarrow x = \frac{-8}{9} \times \frac{15}{-4} \Rightarrow x = \frac{10}{3}$

Thus, the other number is $\frac{10}{3}$

Q-5. By what number should we multiply $\frac{-1}{6}$ so that the product may be $\frac{-23}{9}$?

Solution:

Let, the number be x.

$x \times \frac{-1}{6} = \frac{-23}{9}$

$\Rightarrow x = \frac{-23}{9} \div \frac{-1}{6}$

$\Rightarrow x = \frac{-23}{9} \times \frac{6}{-1}$

$\Rightarrow x = \frac{46}{3}$

Thus, the other number is $\frac{46}{3}$

Q-6. By what number should we multiply $\frac{-15}{28}$ so that the product may be $\frac{-5}{7}$?

Solution:

Let, the number be x.

$x \times \frac{-15}{28} = \frac{-5}{7}$

$\Rightarrow x = \frac{-5}{7} \div \frac{-15}{28}$

$\Rightarrow x = \frac{-5}{7} \times \frac{28}{-15}$

$\Rightarrow x = \frac{4}{3}$

Thus, the other number is $\frac{4}{3}$

Q-7. By what number should we multiply $\frac{-8}{13}$ so that the product may be 24?

Solution:

Let, the number be x.

$x \times \frac{-8}{13} = 24$

$\Rightarrow x = 24 \div \frac{-8}{13}$

$\Rightarrow x = 24 \times \frac{13}{-8} \Rightarrow x = -39$

Thus, the other number is -39.

Q-8. By what number should $\frac{-3}{4}$ be multiplied in order to produce $\frac{2}{3}$?

Solution:

Let, the other number that should be multiplied with $\frac{-3}{4}$ to produce $\frac{2}{3}$ be x.

$x \times \frac{-3}{4} = \frac{2}{3}$

$\Rightarrow x = \frac{2}{3} \div \frac{-3}{4}$

$\Rightarrow x = \frac{2}{3} \times \frac{4}{-3}$

$\Rightarrow x = \frac{-8}{9}$

Thus, the other number is $\frac{-8}{9}$

Q-9. Find $(x + y) \div (x-y)$, if

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

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

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

(iv) $x = \frac{2}{7}, y = \frac{4}{3}$

(v) $x = \frac{1}{4}, y = \frac{3}{2}$

Solution:

(i) $(x + y) \div (x-y)$

$= \left(\frac{2}{3} + \frac{3}{2}\right) \div \left(\frac{2}{3} - \frac{3}{2}\right)$

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

Thus, $(x + y) \div (x-y) = \frac{-13}{5}$

(ii) $(x + y) \div (x-y)$

$= \left(\frac{2}{5} + \frac{1}{2}\right) \div \left(\frac{2}{5} - \frac{1}{2}\right)$

$= \frac{9}{10} \times \frac{10}{-1} = -9$

Thus, $(x + y) \div (x-y) = -9$

(iii) $(x + y) \div (x-y)$

$= \left(\frac{5}{4} + \frac{-1}{3} \right) \div \left(\frac{5}{4} - \frac{-1}{3} \right)$

$= \frac{11}{12} \times \frac{12}{11} = \frac{11}{19}$

Thus, $(x + y) \div (x - y) = \frac{11}{19}$

(iv) $(x + y) \div (x - y)$

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

$= \frac{34}{21} \times \frac{21}{-22} = \frac{-17}{11}$

Thus, $(x + y) \div (x - y) = \frac{-17}{11}$

(v) $(x + y) \div (x - y)$

$= \left(\frac{1}{4} + \frac{3}{2} \right) \div \left(\frac{1}{4} - \frac{3}{2} \right)$

$= \frac{7}{4} \times \frac{4}{-5} = \frac{-7}{5}$

Thus, $(x + y) \div (x - y) = \frac{-7}{5}$

Q-10: The cost of $7\frac{2}{3}$ metres of rope is Rs $12\frac{3}{4}$. Find its cost per metres.

Solution: The cost of $7\frac{2}{3}$ metres of rope is Rs. $7\frac{2}{3}$.

Therefore,

Cost per metre $= 7\frac{2}{3} \div 7\frac{2}{3}$

$= \frac{51}{4} \div \frac{23}{3} = \frac{51}{4} \times \frac{3}{23}$

$= \frac{153}{92} = $ Rs. $1\frac{61}{92}$

Hence, the cost of rope per metres $=$ Rs. $1\frac{61}{92}$

Q-11. The cost of $2\frac{1}{3}$ metres of cloth is Rs. $75\frac{1}{4}$. Find the cost of cloth per metres.

Solution: The cost of $2\frac{1}{3}$ metres of cloth is Rs. $75\frac{1}{4}$.

Therefore,

Cost per metre $= 75\frac{1}{4} \div 2\frac{1}{3}$

$= \frac{301}{4} \div \frac{7}{3} = \frac{301}{4} \times \frac{3}{7}$

$= \frac{129}{4} = $ Rs. $32\frac{1}{4}$

Thus, Rs. $32\frac{1}{4}$ or Rs. 32.25 is the cost of cloth per metre.

Q-12. By what number should $\frac{-33}{16}$ be divided to get $\frac{-11}{4}$?

Solution:

Let, the other number be x.

$\frac{-33}{16} \div x = \frac{-11}{4} \Rightarrow \frac{-33}{16} \times \frac{1}{x} = \frac{-11}{4} \Rightarrow \frac{1}{x} = \frac{-11}{4} \times \frac{16}{-33} \Rightarrow \frac{1}{x} = \frac{4}{3} \Rightarrow x = \frac{3}{4}$

Thus, the other number is $\frac{3}{4}$

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

Solution:

$(\frac{-13}{5} + \frac{12}{7}) \div (\frac{-31}{7} \times \frac{-1}{2})$

$= \frac{-13 \times 7 + 12 \times 5}{35} \div \frac{31}{14}$

$= \frac{-91 + 60}{35} \div \frac{31}{14}$

$= \frac{-31}{35} \times \frac{14}{31} = \frac{-2}{5}$

Q-14. Divide the sum of $\frac{65}{12}$ and $\frac{12}{7}$ by their differences.

Solution:

$(\frac{65}{12} + \frac{12}{7}) \div (\frac{65}{12} - \frac{12}{7})$

$= \frac{65 \times 7 + 12 \times 12}{84} \div \frac{65 \times 7 - 12 \times 12}{84}$

$= \frac{455 + 144}{84} \div \frac{455 - 144}{84}$

$= \frac{599}{84} \div \frac{311}{84}$

$= \frac{599}{84} \times \frac{84}{311} = \frac{599}{311}$

Q-15. If 24 trousers of equal size can be prepared in 54 meters of cloth, what length of cloth is required for each trouser?

Solution:

Cloth needed to prepare 24 trousers = 54 m

So,

Length of the cloth required for each trousers = $54 \div 24 = \frac{54}{24} = \frac{9}{4}$ m $= 2\frac{1}{4}$ metres.