

# 1. Rational Numbers

M T W T F S

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## Exercise 1:1

Q 1 Name the property involved in the following examples.

$$1) \frac{8}{5} + 0 = \frac{8}{5} = 0 + \frac{8}{5} \quad [a + 0 = a]$$

Ans:- Additive Identity (value when added to a no. results in original number)

$$2) 2 \left[ \frac{3}{5} + \frac{1}{2} \right] = 2 \left[ \frac{3}{5} \right] + 2 \left[ \frac{1}{2} \right]$$

Ans:- Distributive Law  $[2(a+b) = 2a + 2b]$

$$3) \frac{3}{7} \times 1 = \frac{3}{7} = 1 \times \frac{3}{7}$$

Ans:- Multiplicative Identity  $[a \times 1 = a = 1 \times a]$

$$4) \left[ \frac{-2}{5} \right] \times 1 = \frac{-2}{5} = 1 \times \left[ \frac{-2}{5} \right]$$

Ans:- Multiplicative Identity

$$5) \frac{2}{5} + \frac{1}{3} = \frac{1}{3} + \frac{2}{5}$$

Ans:- Commutative Property  $[a + b = b + a]$

$$6) \frac{5}{2} \times \frac{3}{7} = \frac{15}{14}$$

Ans:- Closure property  $[a \times b = ab]$

$$7) 7a + (-7a) = 0 \quad [a + (-a) = 0]$$

Ans: Additive Inverse

$$8) x \times \frac{1}{x} = 1 \quad (x \neq 0)$$

Ans: Multiplicative inverse  $[a \times \frac{1}{a} = 1]$

$$9) (2 \times x) + (2 \times 6) = 2 \times (x + 6)$$

Ans: Distributive Law  $[ab + bac = a(b+c)]$

Q.2 Write the additive & multiplicative inverses of following

Additive Inverse      Multiplicative Inverse

i)  $-\frac{3}{5}$

$\frac{3}{5}$

$-\frac{5}{3}$

ii) 1

-1

1

iii) 0:  $1 \times 0$  Does not exist      Does not exist

iv)  $\frac{7}{9}$

$-\frac{7}{9}$

$\frac{9}{7}$

v) -1

1

-1

Q.3 Fill in the blanks

$$i) \left( \frac{-1}{17} \right) + \left( \frac{-12}{5} \right) = \left( \frac{-12}{5} \right) + \left( \frac{-1}{17} \right)$$

Commutative property is used

$$ii) \frac{-2}{3} + \frac{0}{3} = \frac{-2}{3}$$

Additive property is used

$$iii) 1 \times \frac{9}{11} = \frac{9}{11}$$

Multiplicative Identity is used

$$iv) -12 + \left[ \frac{5}{6} + \frac{5}{7} \right] = \left[ -12 + \frac{5}{6} \right] + \left[ \frac{5}{7} \right]$$

Associative property is used

$$v) \left( \frac{3}{4} \right) \times \left[ \frac{1}{2} \times \frac{1}{3} \right] = \left[ \frac{3}{4} \times \frac{1}{2} \right] + \left[ \frac{3}{4} \times \frac{1}{3} \right]$$

Multiplicative Law is used

$$vi) \frac{-16}{7} + \frac{0}{7} = \frac{-16}{7}$$

Additive property

Ans:- Reciprocal of  $-\frac{5}{14} = \frac{14}{5}$

$$\therefore \frac{2}{11} \times \left(-\frac{14}{5}\right) = \frac{2 \times (-14)}{11 \times 5}$$

$$= \frac{-28}{55}$$

5 Which property can be used in computing

$$\frac{2}{5} \times \left[ \frac{5 \times 7}{6} \right] + \frac{1}{3} \times \left[ \frac{3 \times 4}{11} \right]$$

Ans:- Multiplicative Associative,  
Multiplicative inverse,  
Multiplicative identity,  
closure with addition are the  
properties used in computing

Solution :-

$$\frac{2}{5} \times \left( \frac{5 \times 7}{6} \right) + \frac{1}{3} \times \left( \frac{3 \times 4}{11} \right)$$

$$= \frac{2}{\cancel{5}} \times \frac{\cancel{5} \times 7}{6} + \frac{1}{\cancel{3}} \times \frac{\cancel{3} \times 4}{11}$$

$$= 2 \times \frac{7}{6} + 1 \times \frac{4}{11}$$

$$= \frac{14}{6} + \frac{4}{11}$$

$$= 14 \times 11 + 4 \times 6$$

$$11 \times 6$$

$$= \frac{154 + 24}{66}$$

$$66$$

$$= \frac{178}{66}$$

$$66$$

$$= \frac{89}{33} \quad [\text{divide by 2}]$$

Q.6 Verify the following and write the property used.

$$\left[ \frac{5}{4} + \frac{-1}{2} \right] + \frac{-3}{2} = \frac{5}{4} + \left[ \frac{-1}{2} + \frac{-3}{2} \right]$$

We have to prove LHS = RHS

$$\text{LHS :- } \left( \frac{5}{4} + \left( \frac{-1}{2} \right) \right) + \left( \frac{-3}{2} \right)$$

$$= \frac{5 \times 2 + 4 \times (-1)}{4 \times 2} + \left( \frac{-3}{2} \right)$$

$$= \frac{10 - 4}{8} + \left( \frac{-3}{2} \right)$$

$$= \left( \frac{6}{8} - \frac{3}{2} \right) = \frac{3}{4} - \frac{3}{2}$$

$$= \frac{6 - 12}{8} \quad (\text{cross multiplication})$$

$$= \frac{-6}{8} = \frac{-3}{4}$$

$$\text{RHS} = \frac{5}{4} + \left( \frac{-1 + (-3)}{2} \right)$$

$$= \frac{5}{4} + \left( \frac{-4}{2} \right)$$

$$= \frac{5}{4} - 2 = \frac{5-8}{4}$$

$$= \underline{\underline{\frac{-3}{4}}}$$

LHS = RHS (Proved)

∴ Associative Property of addition is used  $[(a+b)+c = a+(b+c)]$

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

Q.7 Evaluate  $\frac{3}{5} + \frac{7}{3} + \left( \frac{-2}{5} \right) + \left( \frac{-2}{3} \right)$  after

rearrangement.

$$= \frac{3}{5} + \left[ \left( \frac{7}{3} \right) + \left( \frac{-2}{5} \right) \right] + \left( \frac{-2}{3} \right)$$

By using commutative property  $(a+b = b+a)$ ,

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

$$= \frac{3-2}{5} + \frac{7-2}{3}$$

$$= \frac{1}{5} + \frac{5}{3}$$

$$= \frac{3 \times 1 + 5 \times 5}{5 \times 3} = \frac{3 + 25}{15}$$

$$= \frac{28}{15}$$

Q. 8 Subtract

i)  $\frac{3}{4}$  From  $\frac{1}{3}$

$$\frac{1}{3} - \frac{3}{4} = \frac{4 \times 1 - 3 \times 3}{4 \times 3} = \frac{4 - 9}{12} = \underline{\underline{\frac{-5}{12}}}$$

ii)  $\frac{-32}{13}$  From 2

$$2 - \left(\frac{-32}{13}\right) = \frac{13 \times 2 - (-32) \times 1}{1 \times 13}$$

$$= \frac{26 + 32}{13} = \underline{\underline{\frac{58}{13}}}$$

iii)  $-7$  From  $-\frac{4}{7}$

$$-\frac{4}{7} - (-7) = \frac{-4 - (-49)}{7} = \frac{-4 + 49}{7} = \underline{\underline{\frac{45}{7}}}$$

Q.9 What number should be added to  $-\frac{5}{8}$  so as to get  $-\frac{3}{2}$ ?

Ans: Suppose x number should be added

$$-\frac{5}{8} + x = -\frac{3}{2}$$

$$x = -\frac{3}{2} + \frac{5}{8} = \frac{(-3) \times 4 + 5 \times 2}{2 \times 4}$$

$$= \frac{-12 + 10}{8} = -\frac{2}{8}$$

$$x = -\frac{1}{4}$$

$\therefore -\frac{1}{4}$  should be added

Q.10 The sum of two rational numbers is 8. If one of the numbers is  $-\frac{5}{6}$ . Find the other.

Ans: The 2<sup>nd</sup> rational number be x

Then,

$$-\frac{5}{6} + x = 8$$

$$x = 8 + \frac{5}{6} = \frac{8 \times 6 + 5 \times 1}{6} = \frac{48 + 5}{6}$$

$$x = \frac{53}{6}$$



The second number should be  $\frac{53}{6}$

Q11: Is subtraction associative in rational numbers. Explain with example

Let  $\frac{1}{2}, \frac{3}{4}, -\frac{5}{4}$  are 3 rational number

Associative property of subtraction :-

$$a - (b - c) = (a - b) - c$$

$$a = \frac{1}{2}, b = \frac{3}{4}, c = -\frac{5}{4}$$

$$\frac{1}{2} - \left( \frac{3}{4} - \left( -\frac{5}{4} \right) \right) = \left( \frac{1-3}{2 \cdot 4} \right) - \left( -\frac{5}{4} \right)$$

$$\text{LHS: } \frac{1}{2} - \left( \frac{3}{4} - \left( -\frac{5}{4} \right) \right) = \frac{1}{2} - \left( \frac{3+5}{4} \right)$$

$$= \frac{1}{2} - \frac{8}{4} = \frac{1-4}{2} = \frac{-3}{2}$$

OR

$$\frac{1}{2} - \frac{8}{4} = \frac{1-2}{2} = \frac{1-4}{2} = \frac{-3}{2}$$

$$\text{RHS} := \left( \frac{1}{2} - \frac{3}{4} \right) - \left( \frac{-5}{4} \right) = \left( \frac{1}{2} - \frac{3}{4} \right) - \left( \frac{-5}{4} \right)$$

$$= \frac{4 - 6}{8} + \frac{5}{4} = \frac{-2}{8} + \frac{5}{4}$$

$$= -\frac{1}{4} + \frac{5}{4} = \frac{-1 + 5}{4} = \frac{4}{4} = 1$$

$$\underline{\underline{\text{LHS} \neq \text{RHS}}}$$

$\therefore$  Subtraction is not associative for rational numbers because LHS is not equal to RHS

Q.12 Verify that  $(-x) = x$  for

$$\text{i) } x = \frac{2}{15}$$

$$\text{LHS} = -x \quad ; \quad \text{RHS} = x$$

$$\therefore -\left(\frac{2}{15}\right) = \frac{2}{15} \quad \therefore \frac{2}{15} = \frac{2}{15}$$

$$\text{LHS} = \text{RHS} \quad (\text{verified})$$

$$\text{ii) } x = -\frac{13}{17}$$

$$\text{LHS} = -x \quad ; \quad \text{RHS} = x$$

$$-\left(\frac{-13}{17}\right) = \frac{-13}{17}$$

$$\frac{-13}{17} = \frac{-13}{17}$$

$\therefore$  LHS = RHS (verified)

Q.13 Write :-

i) The set of numbers which do not have an additive identity

Additive identity :-  $a + x = x$   
( $a =$  additive element)

$$a = 0$$

A set of natural numbers do not have additive identity.

Natural numbers = 1, 2, 3, 4, ...  $\infty$

ii) The rational number that does not have any reciprocal

$$\text{Reciprocal of } 0 = \frac{1}{0}$$

= Not defined

Hence 0 does not have reciprocal

iii) The rational number that is equal to its negative

Let number be  $0$

Negative of  $0$  is  $-0 = 0$

Hence  $0$  is equal to its negative

# Exercise :- 1:2

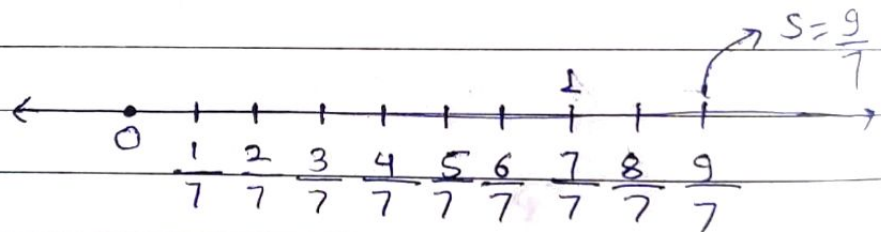
Q.1 Represent these number on number line

i)  $\frac{9}{7}$

$\frac{9}{7}$  is a positive number so we

have to mark it on right side of 0.

Numerator is big so we have to mark 9 markings. The denominator is 7 so we have to put distance  $\frac{1}{7}$ .



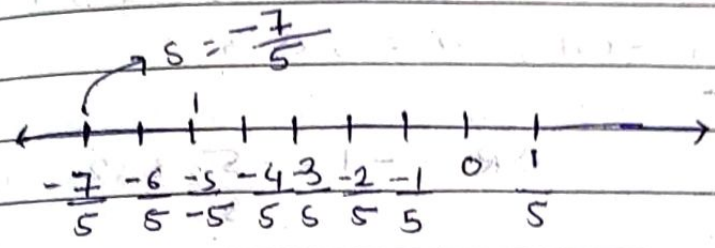
$\therefore$  Point S on number line represents  $\frac{9}{7}$ .

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

$-\frac{7}{5}$  is a negative number so we

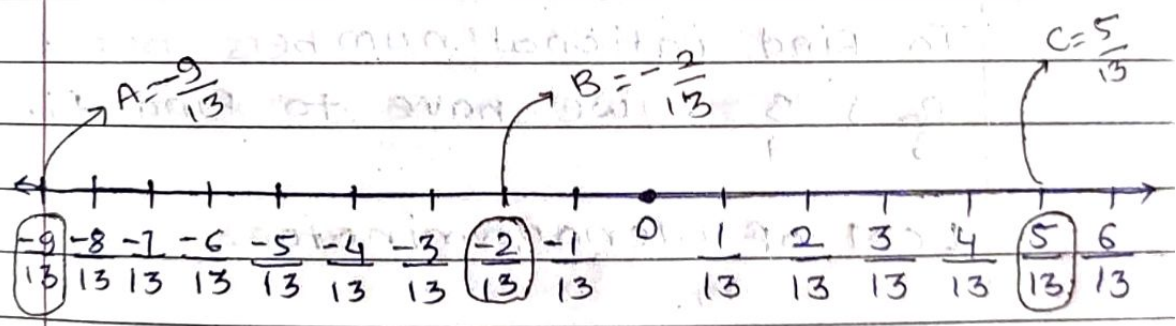
have to mark it on left side of 0.

Numerator is big so we have to mark 7 markings. The denominator is 5 so we have to put distance  $\frac{1}{5}$



Point S on number line is  $-\frac{7}{5}$

Q.2 Represent  $-\frac{2}{13}, \frac{5}{13}, -\frac{9}{13}$  on number line



Q.3 Write five rational number which are smaller than  $\frac{5}{6}$

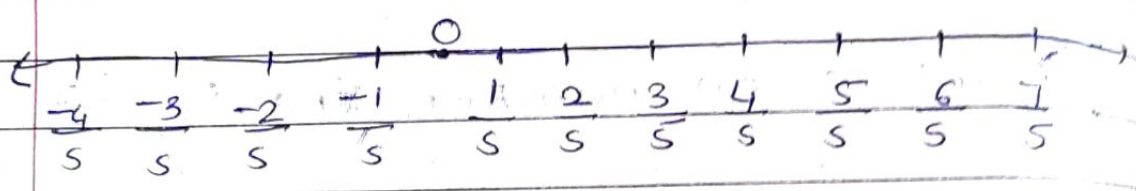
$$\frac{0}{6} < \frac{1}{6} < \frac{2}{6} < \frac{3}{6} < \frac{4}{6} < \frac{5}{6}$$

There are 5 rational numbers less than  $\frac{5}{6}$ .

Q.4 Find 12 rational numbers between -1 & 2

0, 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, -0.1, -0.2, -0.3

OR  $-1 = \frac{-5}{5}$  &  $2 = \frac{10}{5}$



Q.5 Find a rational numbers between  $\frac{2}{3}$  &  $\frac{3}{4}$

To find rational numbers between  $\frac{2}{3}$  &  $\frac{3}{4}$ , we have to find first

LCM of denominator.

LCM of 3 & 4 is 12

$$\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12} ; \frac{3}{4} = \frac{3 \times 3}{4 \times 3} = \frac{9}{12}$$

$$\frac{8}{12} = \frac{8 \times 10}{12 \times 10} = \frac{80}{120} ; \frac{9}{12} = \frac{9 \times 10}{12 \times 10} = \frac{90}{120}$$

∴ so the rational numbers are

$$\frac{80}{120}, \frac{81}{120}, \frac{82}{120}, \frac{83}{120}, \dots, \frac{90}{120}$$

Q.6 Find ten rational numbers between

$$\frac{-3}{4} \text{ \& } \frac{5}{6}$$

LCM of  $\frac{-3}{4}$  &  $\frac{5}{6}$  is

$$\frac{-3}{4} = \frac{-3 \times 6}{4 \times 6} = \frac{-18}{24}; \quad \frac{5}{6} = \frac{5 \times 4}{6 \times 4} = \frac{20}{24}$$



Between  $-\frac{18}{24}$  &  $\frac{20}{24}$  there are

$\frac{-18}{24}, \frac{-17}{24}, \frac{-16}{24}, \frac{-15}{24}, \frac{-14}{24}, \dots, \frac{17}{24}, \frac{18}{24}, \frac{19}{24}, \frac{20}{24}$

rational numbers.

# Exercise - 1:3

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Q.1 Express each of the following decimal in P/q form

i)  $0.57$

$$\frac{0.57 \times 100}{100} = \frac{57}{100}$$

$$\frac{57}{100}$$

ii)  $0.176$

$$\frac{0.176 \times 1000}{1000} = \frac{176}{1000}$$

$$\frac{176}{1000}$$

iii)  $1.00001$

$$\frac{1.00001 \times 100000}{100000} = \frac{100001}{100000}$$

$$\frac{100001}{100000}$$

iv)  $25.125$

$$\frac{25.125 \times 1000}{1000} = \frac{25125}{1000}$$

$$\frac{25125}{1000}$$

Q.2 Express each of the following decimals in the rational form  $\left(\frac{p}{q}\right)$

i)  $0.\bar{9}$

$$\bar{x} = 0.9999 \dots \dots \dots \text{--- (i)}$$

multiply both sides by 10,

$$10x = 0.9999 \times 10$$

$$10x = 9.999 \dots \dots \text{--- (ii)}$$

Subtract (i) from (ii)

$$10x = 9.999$$

$$- x = 0.999$$

$$9x = 9$$

$$x = \frac{9}{9} = 1$$

$$\therefore \frac{p}{q} = 1$$

ii)  $0.\overline{57}$

$$\overline{x} = 0.5757 \dots \text{--- (i)}$$

multiply both sides by 100,

$$100x = 57.57 \text{--- (ii)}$$

Subtract (i) from (ii)

$$100x = 57.57$$

$$- \overline{x} = 0.5757$$

$$99x = 57$$

$$x = \frac{57}{99}$$

$$\therefore \frac{p}{q} = \frac{57}{99} = \frac{19}{33}$$

iii)

$$0.\overline{729}$$

$$x = 0.7292929 \dots \dots (i)$$

multiply both sides by 100,

$$100x = 100 \times 0.72929$$

$$100x = 72.9292 \dots \dots (ii)$$

subtract (i) from (ii)

$$100x = 72.9292$$

$$\underline{- x = 0.7292}$$

$$99x = 72.2000$$

$$x = \frac{72.2}{99}$$

$$\therefore P = \frac{72.2858585}{99}$$

$$= \frac{722.8585}{99 \times 10}$$

$$= \frac{722.8585}{990}$$

$$= \frac{722}{990}$$

$$\therefore \frac{P}{9} = \frac{722}{990}$$

$$\frac{P}{9} = \frac{722}{990}$$

$$\therefore \frac{P}{9} = \frac{722}{990}$$

iv)

$$12.\overline{28}$$

$$x = 12.28888 \dots \dots (i)$$

multiply both sides by 10,

$$10x = 122.888 \dots \dots (ii)$$

subtract (i) from (ii)

$$\begin{array}{r} 10X = 122.888 \\ - X = 12.288 \\ \hline 9X = 110.600 \end{array}$$

$$X = \frac{110.6}{9}$$

$$\therefore \frac{P}{9} = \frac{1106}{9 \times 10} = \frac{1106}{90}$$

Q. 3 Find  $(x+y) \div (x-y)$  if

$$i) x = \frac{5}{2}, y = -\frac{3}{4}$$

Ans.  $(x+y) \div (x-y)$

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

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

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

$$= \left( \frac{20 - 6}{8} \right) \div \left( \frac{20 + 6}{8} \right)$$

$$= \frac{14}{8} \div \frac{26}{8} = \frac{14}{8} \times \frac{8}{26}$$

$$= \frac{14}{8} \times \frac{8}{26}$$

$$= \frac{14}{26} = \frac{7}{13}$$

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

Ans.  $(x+y) \div (x-y)$

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

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

$$= \left( \frac{2 + 12}{8} \right) \div \left( \frac{2 - 12}{8} \right)$$

$$= \frac{14}{8} \div \left( \frac{-10}{8} \right) = \frac{14}{8} \times \frac{-8}{10}$$

$$= \frac{-14}{10} = \frac{-7}{5}$$

Q.4 Divide the sum of  $-\frac{13}{5}$  &  $\frac{12}{7}$  by the product of  $-\frac{13}{7}$  &  $-\frac{1}{2}$

Ans:- Sum :-  $-\frac{13}{5} + \frac{12}{7}$

$$= \frac{-13 \times 7 + 12 \times 5}{5 \times 7} = \frac{-91 + 60}{35}$$

$$\text{SUM} = \frac{-31}{35}$$

$$\text{Product :- } \frac{-13}{7} \times \left( \frac{-1}{2} \right)$$

$$= \frac{(-13) \times (-1)}{7 \times 2} = \frac{13}{14}$$

So we have to divide the sum by product,

$$\frac{-31}{35} \div \frac{13}{14} = \frac{-31}{35} \times \frac{14}{13} = \frac{-31 \times 2}{5 \times 13}$$

$$= \frac{-62}{65}$$

Q.5 IF  $\frac{2}{5}$  OF a number exceeds  $\frac{1}{4}$  OF the same number by 36. Find the number.

Ans.: From given condition,

$$\frac{2}{5}x = \frac{1}{4}x + 36$$

$$\frac{2}{5}x - \frac{1}{4}x = 36$$

$$\frac{14x - 5x}{20} = 36$$

$$14x - 5x = 36 \times 20$$

$$9x = 36 \times 20$$

$$x = \frac{36 \times 20}{9}$$

$$x = \frac{140}{1}$$

Q.6 Two pieces of lengths  $2\frac{3}{5}$  m &

$3\frac{3}{10}$  m are cut off from a rope

11 m long. What is the length of remaining rope?



Given :-

Length of the rope = 11 m

$$\text{Two places length : } 2 \frac{3}{5} = \frac{13}{5}$$

$$3 \frac{3}{10} = \frac{33}{10}$$

$$\therefore \frac{13}{5} + \frac{33}{10}$$

$$= \frac{13 \times 10 + 33 \times 5}{5 \times 10} = \frac{130 + 165}{50}$$

$$= \frac{295}{50} = \frac{59}{10}$$

So we have minus  $\frac{59}{10}$  from 11,

$$11 - \frac{59}{10} = \frac{11 \times 10 - 59}{10}$$

$$= \frac{110 - 59}{10}$$

$$= \frac{51}{10}$$

$\therefore$  The length of remaining rope

$$\text{is } \frac{51}{10}.$$

Q. 7 The cost of  $7\frac{2}{3}$  meters of cloth is ₹  $12\frac{3}{4}$ . Find the cost per metre.

Ans:- Given

$$\text{Length} = 7\frac{2}{3} = \frac{23}{3} \text{ m}$$

$$\text{Cost} = 12\frac{3}{4} = ₹ \frac{51}{4}$$

For cost per metre, we have to divide cost by length.

$$\frac{\text{Cost}}{\text{Length}} = \frac{\frac{51}{4}}{\frac{23}{3}}$$

$$= \frac{51}{4} \times \frac{3}{23} = \frac{153}{92}$$

$$= 1.66$$

∴ The cost per metre is ₹ 1.66

Q. 8 Find the area of rectangular park which is  $18\frac{3}{5}$  m long &  $8\frac{2}{3}$  m broad.

Ans:-

Given :-  
 Length =  $18\frac{3}{5}$  m =  $\frac{93}{5}$  m

Breadth =  $8\frac{2}{3}$  m =  $\frac{26}{3}$  m

Area of Rectangle =  $L \times b$

$$= \frac{93}{5} \times \frac{26}{3}$$

$$= \frac{31}{5} \times 26$$

$$= \frac{775}{5} \times 12$$

$$= 155$$

∴ Area of rectangular park is 155!

Q.9 What number should  $\frac{-33}{16}$  be divided by to get  $-\frac{11}{4}$  ?

Ans:  $\frac{-33}{16} \div x = -\frac{11}{4}$

$$\therefore \frac{-33}{16} = \frac{-11}{4} \times x$$

$$\therefore \frac{-33}{16} = \frac{-11}{4} x$$

$$\frac{-33}{16} \times \frac{4}{11} = x$$

$$x = -\left(\frac{-3}{4}\right)$$

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

$\therefore \frac{3}{4}$  should be added.

Q.10 If 36 trousers of equal size can be stitched with 64 meters of cloth. What is length of the cloth required for each trouser ?

Given :-

$$\text{Total length} = 64 \text{ m}$$

$$\text{Trousers} = 36$$

Length of cloth required for each trouser

$$= \frac{\text{Total metres}}{\text{Trousers}}$$

$$= \frac{64}{36}$$

$$= \frac{16}{9}$$

$$= \underline{\underline{16}}$$

$$\underline{\underline{9}}$$

∴ Length of cloth required for each trouser is  $\frac{16}{9}$  m.

Q.11 When the repeating decimal  $10.363636\ldots$  is written in simplest fractional form  $\frac{p}{q}$ ,

Find the value of  $p+q$ .

Ans:- Repeating decimal =  $10.363636\ldots$

$$x = 10.3636\ldots \quad \text{--- (i)}$$

multiply both side by 100,

$$100x = 10.3636 \times 100$$

$$100x = 1036.3636 \dots \quad (1)$$

Subtract eq<sup>n</sup> (1) & (2)

$$\begin{array}{r} 100x = 1036.3636 \\ - \quad x = 10.36 \\ \hline \end{array}$$

$$99x = 1026$$

$$99x = 1026$$

$$x = \frac{1026}{99}$$

$$\therefore \frac{P}{9} = \frac{1026}{99}$$

$$\begin{aligned} P+9 &= 1026 + 99 \\ &= \underline{\underline{1125}} \end{aligned}$$

$$\therefore P+9 = 1125$$

The value of  $P+9$  is 1125.