

# Ch.-6 Fractions

classmate

Date \_\_\_\_\_  
Page \_\_\_\_\_

## INDEX

Date	Topic	Completion Date
	Activity	
	Fractions and its type	
	Operations of fractions	
	word problems.	
	worksheet	
	class Test	
	Surprise Test	

## Ch.-6 Fractions

CLASSMATE  
Date \_\_\_\_\_  
Page \_\_\_\_\_

A fraction is written as  $\frac{P}{q}$ , where

$P$  and  $q$  are whole numbers and  $q \neq 0$   
 $P$  is called the numerator and  $q$   
is called the denominator.

### Types of Fractions:-

(i) Proper Fractions:- Proper fractions are those fractions in which the numerator is less than the denominator.

Ex.-  $\frac{3}{5}, \frac{7}{9}, \frac{8}{11}$

(ii) Improper Fractions:- Improper fractions are those fractions in which the numerator is either equal to or greater than the denominator.

Ex.-  $\frac{7}{5}, \frac{4}{4}, \frac{13}{12}$

(iii) Mixed Fractions:- Mixed fraction is a combination of a whole number and a proper fraction.

Ex.-  $3\frac{1}{2}, 4\frac{1}{5}, 17\frac{2}{7}$

Like fractions:- Fractions with the same denominator are called like fractions.

Ex. -  $\frac{4}{5}, \frac{6}{5}, \frac{9}{5}$

Unlike fractions:- Fractions with different denominators are called unlike fractions.

Ex. -  $\frac{1}{2}, \frac{8}{9}, \frac{9}{11}$

Unit fractions:- A fraction with numerator 1 is called a unit fraction.

Ex. -  $\frac{1}{2}, \frac{1}{9}, \frac{1}{11}$

### Operations of fractions.

Add :-  $\frac{3}{4}$  and  $\frac{5}{4}$

Sol :- Given like fractions

$$\frac{3}{4} \text{ and } \frac{5}{4} = \frac{3}{4} + \frac{5}{4} = \frac{8}{4} =$$

b. Add.  $\frac{3}{4}$ ,  $\frac{5}{6}$  and  $\frac{6}{7}$

Given unlike fractions.

$$\frac{3}{4} + \frac{5}{6} + \frac{6}{7}$$

Step 1 Obtain the denominators of the fractions and find their Lcm

Step 2 Convert each fraction to its equivalent fraction

Step 3 Add/ subtract

Lcm of 4, 6, 7

$$\text{Lcm} = 2 \times 2 \times 3 \times 7 = 84$$

$$\frac{3}{4} \times \frac{21}{21} = \frac{63}{84}$$

$$\frac{5}{6} \times \frac{14}{14} = \frac{70}{84}$$

$$\frac{6}{7} \times \frac{12}{12} = \frac{72}{84}$$

$$\frac{63}{84} + \frac{70}{84} + \frac{72}{84} = \frac{205}{84} = 2 \frac{37}{84} \text{ Ans}$$

2	<u>4, 6, 7</u>
2	<u>2, 3, 7</u>
3	<u>1, 3, 7</u>
7	<u>1, 1, 7</u>
	<u>1, 1, 1</u>

## Warm-up Exercise.

1. Convert each mixed fraction into its corresponding improper fraction.

(a.)  $5 \frac{1}{2}$

Sol:- Given mixed fraction

$$5 \frac{1}{2} = \frac{5 \times 2 + 1}{2} = \frac{11}{2} \text{ Ans.}$$

(b.)  $2 \frac{14}{15}$

Given mixed fraction

$$2 \frac{14}{15} = \frac{2 \times 15 + 14}{15} = \frac{30 + 14}{15} = \frac{44}{15}$$

2. Convert the given improper fractions into mixed numbers.

(a.)  $\frac{17}{5}$

Sol:- Given improper fraction

$$\frac{17}{5} = 3 \frac{2}{5} \text{ Ans}$$

$$\begin{array}{r} 5 \overline{) 17} (3 \\ \underline{15} \\ \times 2 \end{array}$$

Quotient = 3

Remainder = 2

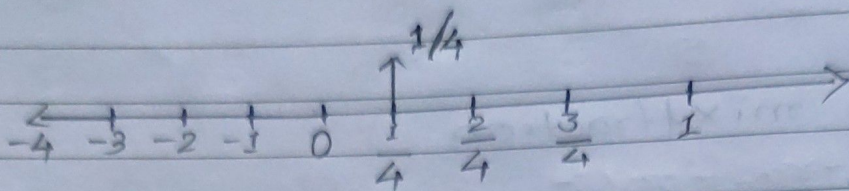
Divisor = 5

Mixed no =  $Q \frac{R}{D}$

(b.)  $\frac{81}{23} = 3 \frac{12}{23} \text{ Ans}$

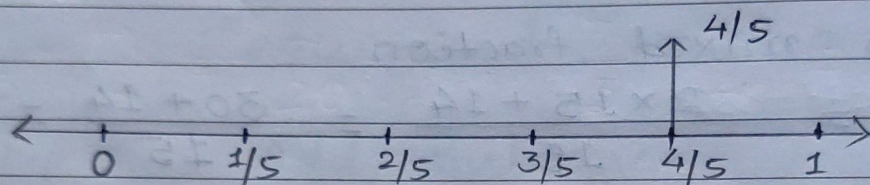
3. Represent  $\frac{1}{4}$  fractions on the number line.

Sol:-



(b)  $\frac{4}{5}$

Sol:-



4. Write two equivalent fractions for each of the following:

(a)  $\frac{2}{5}$

Sol:- Given fraction

$\frac{2}{5}$  equivalent fractions  $\frac{2 \times 2}{5 \times 2} = \frac{4}{10}$ ,  $\frac{2 \times 3}{5 \times 3} = \frac{6}{15}$

(b)  $\frac{6}{7}$

Given fraction

$\frac{6}{7}$  equivalent fractions  $\frac{6 \times 2}{7 \times 2} = \frac{12}{14}$ ,  $\frac{6 \times 3}{7 \times 3} = \frac{18}{21}$ .

6. Check whether the following pair of fractions are equivalent or not

(a)  $\frac{3}{5}, \frac{7}{5}$

Sol:- Given fractions

$$\frac{3}{5} \neq \frac{7}{5}$$

$$3 \times 5 \neq 7 \times 5$$

$$15 \neq 35$$

Not equivalent fractions.

(b)  $\frac{1}{9}, \frac{3}{27}$

Given fractions

$$\frac{1}{9}, \frac{3}{27}$$

$$1 \times 27 = 3 \times 9$$

$$27 = 27$$

Yes, equivalent fractions.

7. Reduce the fraction in the simplest form.

(a)  $\frac{5}{25}$

Sol:-  $\frac{5 \div 5}{25 \div 5} = \frac{1}{5}$  Ans

(b)  $\frac{35}{63}$

Sol:-  $\frac{35 \div 7}{63 \div 7} = \frac{5}{9}$  Ans

## Checkpoint 6A.

Q.1 Arrange the following fractions in descending order.

(a)  $\frac{1}{5}, \frac{3}{5}, \frac{2}{4}, \frac{4}{5}$

Sol:- Given fractions.

$$\frac{1}{5}, \frac{3}{5}, \frac{2}{4}, \frac{4}{5}$$

LCM of 5, 5, 4, and 5 = 20

$$\frac{1}{5} \times \frac{4}{4} = \frac{4}{20}, \quad \frac{3}{5} \times \frac{4}{4} = \frac{12}{20}$$

$$\frac{2}{4} \times \frac{5}{5} = \frac{10}{20}, \quad \frac{4}{5} \times \frac{4}{4} = \frac{16}{20}$$

Arrange in descending order.

$$\frac{16}{20} > \frac{12}{20} > \frac{10}{20} > \frac{4}{20}$$

$$\frac{4}{5} > \frac{3}{5} > \frac{2}{4} > \frac{4}{20}$$

Ans



Q.2 Arrange the set of given fractions in ascending order.

(a)  $\frac{1}{3}$ ,  $\frac{7}{9}$ ,  $\frac{1}{6}$

Sol:— Given fractions.

$$\frac{1}{3}, \frac{7}{9}, \frac{1}{6}$$

$$\text{Lcm of } 3, 6, 9 = 18$$

$$\frac{1}{3} \times \frac{6}{6} = \frac{6}{18}, \quad \frac{7}{9} \times \frac{2}{2} = \frac{14}{18}$$

$$\frac{1}{6} \times \frac{3}{3} = \frac{3}{18}$$

Arrange in ascending order.

$$\frac{3}{18} < \frac{6}{18} < \frac{14}{18}$$

$$\frac{1}{6} < \frac{1}{3} < \frac{7}{9}$$

Ans

Page \_\_\_\_\_

Topic:- Addition and subtraction of  
Mixed fraction.

Add:-  $5\frac{3}{4} + 3\frac{1}{6}$

Sol:- Given mixed fraction

$$5\frac{3}{4} + 3\frac{1}{6}$$

$$= \frac{5 \times 4 + 3}{4} + \frac{3 \times 6 + 1}{6}$$

$$= \frac{23}{4} + \frac{19}{6}$$

$$= \text{LCM of } 4, 6 = 12$$

$$\frac{23}{4} \times \frac{3}{3} = \frac{69}{12}$$

$$\frac{19}{6} \times \frac{2}{2} = \frac{38}{12}$$

$$= \frac{69}{12} + \frac{38}{12} \quad (\text{Like fraction})$$

$$= \frac{107}{12}$$

$$= 8\frac{11}{12}$$

Thus,  $5\frac{3}{4} + 3\frac{1}{6} = 8\frac{11}{12}$  Ans

Subtract:  $19\frac{1}{2} - 3\frac{1}{4}$

Sol:- Given mixed fractions.

$$19\frac{1}{2} - 3\frac{1}{4}$$

$$= \frac{39}{2} - \frac{13}{4}$$

$$\text{LCM of } 2, 4 = 4$$

$$\frac{39}{2} \times \frac{2}{2} = \frac{78}{4}, \quad \frac{13}{4} \times \frac{1}{1} = \frac{13}{4}$$

$$\frac{78}{4} - \frac{13}{4} = \frac{78-13}{4} = \frac{65}{4} = 16\frac{1}{4} \text{ Ans}$$

Simplify:-  $7\frac{5}{7} + 6\frac{3}{5} - 7\frac{6}{8}$

Given mixed fractions

$$7\frac{5}{7} + 6\frac{3}{5} - 7\frac{6}{8}$$

$$= \frac{54}{7} + \frac{33}{5} - \frac{62}{8}$$

$$\text{LCM of } 7, 5 \text{ and } 8 = 280$$

$$\frac{54}{7} \times \frac{40}{40} = \frac{2160}{280}, \quad \frac{33}{5} \times \frac{56}{56} = \frac{1848}{280}$$

$$\frac{62}{8} \times \frac{35}{35} = \frac{2170}{280}$$

$$\frac{2160}{280} + \frac{1848}{280} = \frac{2170}{280}$$

$$= \frac{2160 + 1848 - 2170}{280}$$

$$= \frac{1838 \div 2}{280 \div 2}$$

$$= \frac{919}{140} = 6 \frac{79}{140} \quad \text{Ans}$$

Topic:- Multiplication Of Fractions.

Multiply:-  $\frac{3}{4}$  and  $\frac{2}{9}$

Sol:- Given fractions

$$\frac{3}{4} \text{ and } \frac{2}{9} = \frac{\cancel{3}^1}{\cancel{4}_2} \times \frac{\cancel{2}^1}{9_3}$$

$$= \frac{1}{6} \quad \text{Ans}$$

(b)  $\frac{1}{4} \times \frac{4}{7}$

Sol:-  $\frac{\cancel{1}}{\cancel{4}^1} \times \frac{\cancel{4}^1}{7} = \frac{1}{7} \quad \text{Ans}$

(c)  $\frac{1}{8} \times \frac{7}{26} = \frac{7}{208} \quad \text{Ans}$

## Topic - Division of Fractions.

1. Divide the following:

(a)  $3 \div \frac{15}{17}$

Sol:- Given fraction

$$= \frac{3}{1} \div \frac{15}{17}$$

$$= \frac{3}{1} \times \frac{17}{15} \quad \left( \text{reciprocal of } \frac{15}{17} \right)$$

$$= \frac{17}{5}$$

$$= 3 \frac{2}{5} \text{ Ans.}$$

(b)  $8 \div \frac{2}{3}$   
Given fraction

$$= 8 \div \frac{2}{3}$$

$$= 8 \times \frac{3}{2}$$

$$= 4 \times 3$$

$$= 12 \text{ Ans.}$$

(c)  $2 \div 3 \frac{1}{7}$

Sol:-  $= 2 \div \frac{22}{7}$

$$= 2 \times \frac{7}{22}$$

$$= \frac{7}{11}$$

Thus,  $2 \div 3 \frac{1}{7} = \frac{7}{11}$  Ans

2. Divide the following fractions and write the answer in the simplest form.

(a)  $\frac{5}{9} \div \frac{15}{19}$

Sol:-  $\frac{5}{9} \div \frac{15}{19}$

$$\frac{5}{9} \times \frac{19}{15} = \frac{19}{27} \text{ Ans.}$$

(b.)  $\frac{6}{13} \div \frac{7}{26}$

Sol:-  $\frac{6}{13} \times \frac{26}{7}$

$$= \frac{12}{7} \text{ Ans.}$$

Q.3 Divide the following mixed fractions.

(a)  $11\frac{1}{2} \div 5\frac{1}{2}$

(b)  $6\frac{6}{7} \div 7\frac{1}{2}$

Sol:- Given mixed fraction

$$11\frac{1}{2} \div 5\frac{1}{2}$$

$$\frac{23}{2} \div \frac{11}{2}$$

$$\frac{23}{2} \div \frac{11}{2}$$

$$= \frac{23}{2} \times \frac{2}{11}$$

$$= \frac{23}{11}$$

$$= 2\frac{1}{11}$$

Thus,  $11\frac{1}{2} \div 5\frac{1}{2} = 2\frac{1}{11}$  Ans

$$= \frac{48}{7} \div \frac{15}{2}$$

$$= \frac{48}{7} \times \frac{2}{15}$$

$$= \frac{16 \times 2}{7 \times 5}$$

$$= \frac{32}{35}$$

Thus,  $6\frac{6}{7} \div 7\frac{1}{2} = \frac{32}{35}$

Q.4 Find the reciprocal of each of the following

(a)  $\frac{5}{7}$  reciprocal =  $\frac{7}{5}$

(b)  $\frac{7}{13}$  reciprocal =  $\frac{13}{7}$

(c)  $\frac{16}{15}$  reciprocal =  $\frac{15}{16}$

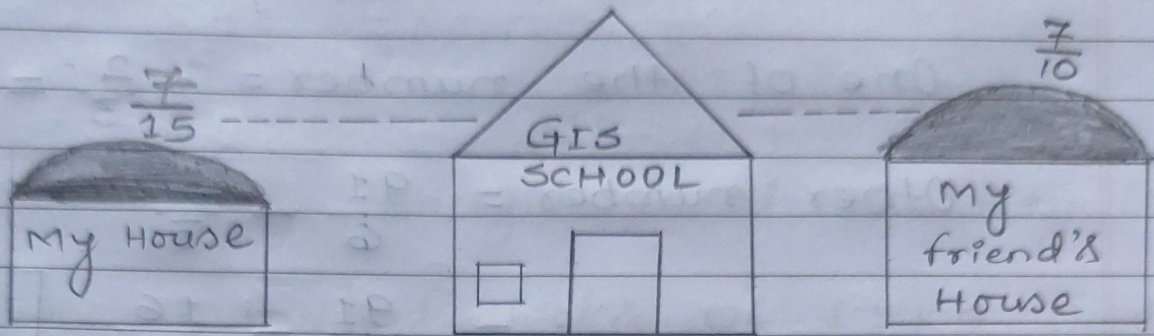
(d)  $\frac{1}{8}$  reciprocal =  $\frac{8}{1}$

## Topic - Fraction stories (word problem)

Q.1 My school is  $\frac{7}{15}$  km from my house.

my friend's house is  $\frac{7}{10}$  km away from our school. who stays <sup>10</sup> near to the school.

Sol:-



Distance between my house and my school

$$= \frac{7}{15} \text{ km.}$$

Distance between my friend's house and school =  $\frac{7}{10}$  km.

$$\frac{7}{15}, \frac{7}{10} \quad (\text{unlike fraction})$$

$$\frac{14}{30}, \frac{21}{30}$$

my house is near to my ~~house~~ school.

Q.2 The sum of the two number is  $15\frac{1}{6}$ .  
If one of the numbers is  $2\frac{2}{3}$ , find the other number.

Sol:- sum of two number =  $15\frac{1}{6} = \frac{91}{6}$

One of the number =  $2\frac{2}{3} = \frac{8}{3}$

Other number =  $\frac{91}{6} - \frac{8}{3}$   
 $= \frac{91}{6} - \frac{16}{6}$  [like fraction]

$= \frac{91-16}{6}$

$= \frac{75}{6}$

$= 12\frac{3}{6}$  or  $12\frac{1}{2}$

Thus, other number is  $12\frac{1}{2}$  Ans.

3. Maarut bought  $1\frac{1}{4}$  kg. spinach,  $\frac{1}{2}$  kg lettuce,  $2\frac{1}{3}$  kg potatoes and  $1\frac{2}{3}$  kg carrots. Find what quantity of total vegetables did he buy.

Sol:- Maarut bought =  $1\frac{1}{4}$  kg =  $\frac{5}{4}$  kg  
 Spinach

lettuce =  $\frac{1}{2}$  kg

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

carrots =  $\frac{5}{3}$  kg



$$\begin{aligned}
 \text{Total quantity} &= \left( \frac{5}{4} + \frac{1}{2} + \frac{7}{3} + \frac{5}{3} \right) \text{ kg.} \\
 &= \left( \frac{15 + 6 + 28 + 20}{12} \right) \text{ kg} \\
 &= \frac{69}{12} \\
 &= 5 \frac{9}{12} \text{ or } 5 \frac{3}{4} \text{ kg.}
 \end{aligned}$$

Thus, Maanul bought total quantity is  $5 \frac{3}{4}$ .

4. How many packets of  $\frac{1}{4}$  kg of sugar can be made from 50 kg of sugar?

Sol:-

$$\text{Total weight of sugar} = 50 \text{ kg}$$

$$\text{Required packets} = \frac{1}{4} \text{ kg.}$$

$$\text{Number of packets} = \frac{\text{Total weight}}{1 \text{ packet}}$$

$$= 50 \div \frac{1}{4}$$

$$= (50 \times 4)$$

$$= 200$$

Thus, Number of packets is 200 for

5. Daljeet Singh drives  $60 \frac{2}{3}$  km in  $1 \frac{1}{3}$  hours. How much distance would be driven by him in an hour at uniform speed?

Sol:- Daljeet Singh drives in  
 $1\frac{1}{3}$  hours =  $60\frac{2}{3}$  km

$$\frac{4}{3} \text{ hours} = \frac{60 \times 3 + 2}{3}$$

$$\frac{4}{3} \text{ hours} = \frac{182}{3} \text{ km}$$

$$1 \text{ hours} = \frac{182}{3} \times \frac{3}{4}$$

$$= \frac{182}{4}$$

$$= \frac{91}{2}$$

$$= 45\frac{1}{2} \text{ km.}$$

Thus, an hour at uniform speed is  $45\frac{1}{2}$

Q. Saanvi has a 58 cm long ribbon. She cuts it into  $7\frac{1}{4}$  cm long pieces. Each piece is  $\frac{1}{4}$  of equal length. Find how many pieces does she cut.

Sol:- Total length of ribbon = 58 cm.

$$\text{One piece of ribbon} = 7\frac{1}{4} = \frac{29}{4} \text{ cm}$$

$$\text{Required Pieces} = 58 \div \frac{29}{4}$$

$$= \frac{58 \times 4}{29}$$

$$\text{Required Pieces} = 8 \text{ pieces.}$$

Let us Assess.

1. Add the following:

(a)  $\frac{2}{9} + \frac{1}{6}$

(b)  $\frac{5}{7} + 1\frac{1}{3}$

Sol:- Given fractions

$$\frac{2}{9} + \frac{1}{6}$$

Lcm of 9, 6 = 18

$$\frac{2}{9} \times \frac{2}{2} = \frac{4}{18}$$

$$\frac{1}{6} \times \frac{3}{3} = \frac{3}{18}$$

$$\frac{4}{18} + \frac{3}{18} = \frac{7}{18}$$

Thus,  $\frac{2}{9} + \frac{1}{6} = \frac{7}{18}$

(b) Given fraction

$$\frac{5}{7} + 1\frac{1}{3}$$

$$= \frac{5}{7} + \frac{4}{3}$$

$$= \frac{15 + 28}{21}$$

$$= \frac{43}{21}$$

$$= 2\frac{1}{21}$$

Thus,  $\frac{5}{7} + 1\frac{1}{3} = 2\frac{1}{21}$  Ans

2. Subtract:- (a)  $\frac{3}{11} - \frac{1}{11}$  (b)  $\frac{9}{15} - \frac{1}{3}$ 

(a) Given fractions

$$\frac{3}{11} - \frac{1}{11} = \frac{3-1}{11}$$

Thus,  $\frac{3}{11} - \frac{1}{11} = \frac{2}{11}$  Ans

(b)  $\frac{9}{15} - \frac{1}{3}$ 

$$= \frac{9-5}{15} \quad \text{[Lcm 15]}$$

$$= \frac{4}{15} \quad \text{Ans}$$

Q.3. Find the product of a.  $\frac{5}{25} \times 130$

b.  $\frac{8}{48} \times 132$

Sol:- Given fraction

$$(a) \frac{5}{25} \times 130$$

$$= 26 \text{ Ans.}$$

$$\text{Thus, } \frac{8}{48} \times 132 = 22$$

$$b) \frac{8}{48} \times 132$$

$$= 22$$

$$\text{Thus, } \frac{8}{48} \times 132 = 22 \text{ Ans}$$

Q.4 Multiply  $\frac{1}{3}$  of 15 by  $3\frac{1}{5}$

Sol:-  $\frac{1}{3}$  of 15 by  $3\frac{1}{5}$

$$= \left( \frac{1}{3} \times 15 \right) \times \frac{3 \times 5 + 1}{5}$$

$$= \frac{15}{3} \times \frac{16}{5}$$

$$= \frac{16}{5} \times \frac{5}{1}$$

$$= \frac{16}{5} \times 5$$

$$= 16 \text{ Ans}$$

Q. 5 (b) Divide the product of  $\frac{1}{2}$  and  $15\frac{1}{2}$  by the product of  $\frac{1}{3}$  and  $13\frac{1}{2}$ .

Sol:-

I<sup>st</sup> Product of  $\frac{1}{2}$  and  $15\frac{1}{2}$

$$= \frac{1}{2} \times \frac{31}{2}$$

Product =  $\frac{31}{4}$

II product =  $\frac{1}{3} \times 13\frac{1}{2}$

$$= \frac{1}{3} \times \frac{27}{2}$$

$$= \frac{9}{2}$$

Divide = I<sup>st</sup> product  $\div$  II<sup>nd</sup> product

$$= \frac{31}{4} \div \frac{9}{2}$$

$$= \frac{31}{4} \times \frac{2}{9}$$

$$= \frac{31}{18} \quad \text{Ans}$$

$$= 1\frac{13}{18}$$

Thus, Required no. is  $1\frac{13}{18}$  Ans

Q.6. The movie lasted for  $3\frac{1}{5}$  hours. Snehal watched only  $\frac{1}{4}$  of it. What fraction of the movie could not watch?

Sol:- Total time of movie =  $3\frac{1}{5}$  hours.

$$= \frac{16}{5} \text{ h.}$$

$$\text{Snehal watched} = \frac{1}{4}$$

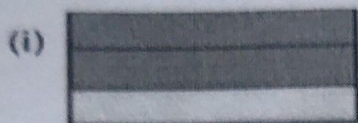
$$\text{Snehal could not watch} = \frac{16}{5} - \frac{1}{4}$$

$$= \frac{16 \times 4 - 5 \times 1}{20}$$

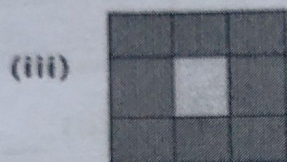
$$= \frac{64 - 5}{20}$$

$$= \frac{59}{20} \text{ hours}$$

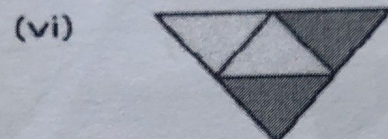
$$= 2\frac{19}{20} \text{ hours}$$


**SESSION: 2024-25**
**PROXY WORKSHEET**
**SUBJECT: MATHS**
**LEVEL - I**
**CHAPTER- 6 FRACTIONS**
**CLASS: V**
**Q.1 Write the fraction representing the shaded portion:**


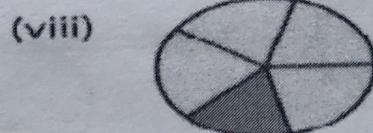
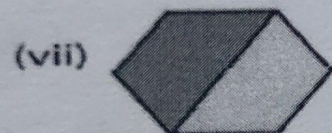
(i) \_\_\_\_ (ii) \_\_\_\_



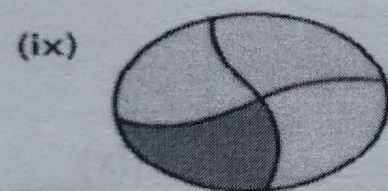
(iii) \_\_\_\_ (iv) \_\_\_\_



(v) \_\_\_\_ (vi) \_\_\_\_



(vii) \_\_\_\_ (viii) \_\_\_\_



(ix) \_\_\_\_

**Q.2 Convert into improper fraction**

(i)  $\frac{18}{5}$

(ii)  $\frac{45}{13}$

**Q.3 Convert into improper fraction**

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

(ii)  $2\frac{6}{13}$

**Q.4 Add the following :**

(i)  $\frac{7}{5} + \frac{9}{5}$

(ii)  $\frac{5}{13} + \frac{6}{13}$

(iii)  $\frac{7}{15} + \frac{2}{5}$

**Q.5 Subtract :**

(i)  $\frac{7}{5} - \frac{2}{5}$

(ii)  $\frac{5}{13} - \frac{2}{13}$

(iii)  $\frac{8}{15} - \frac{2}{5}$