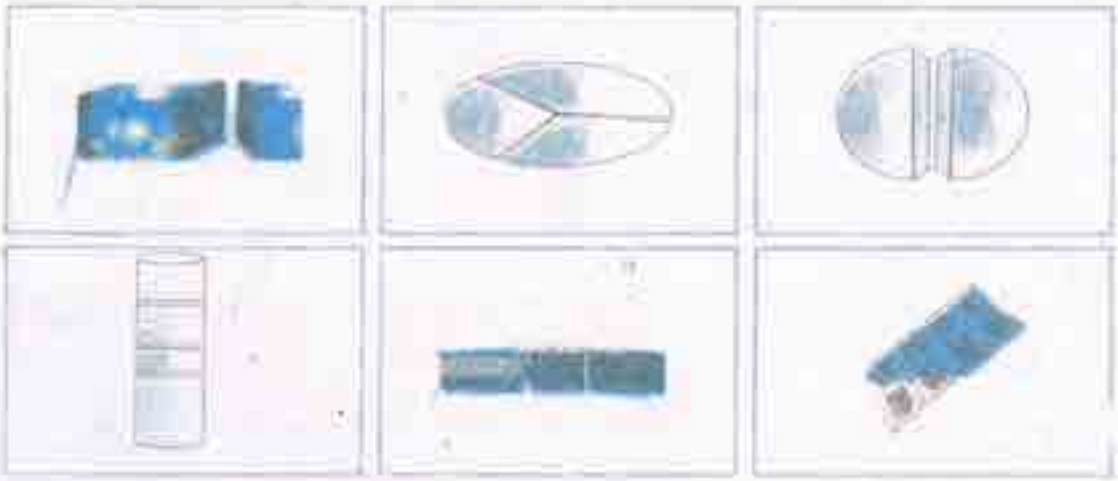
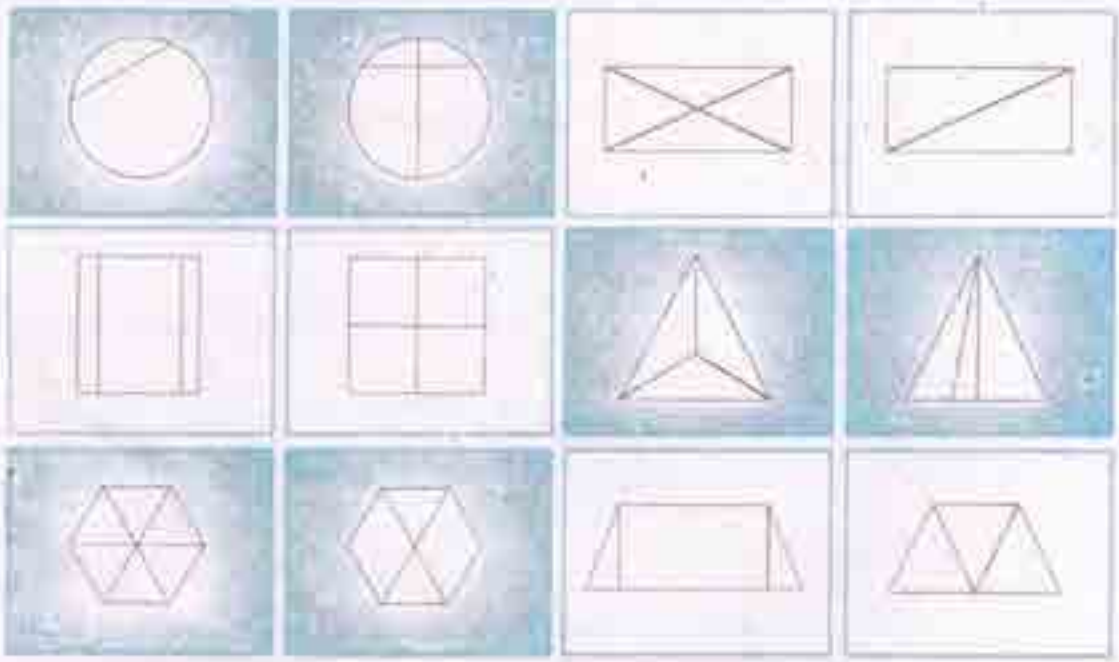
Fractional Numbers

Parts of a Whole

Here, each object is cut into a number of parts. Some in equal parts and some in unequal parts.

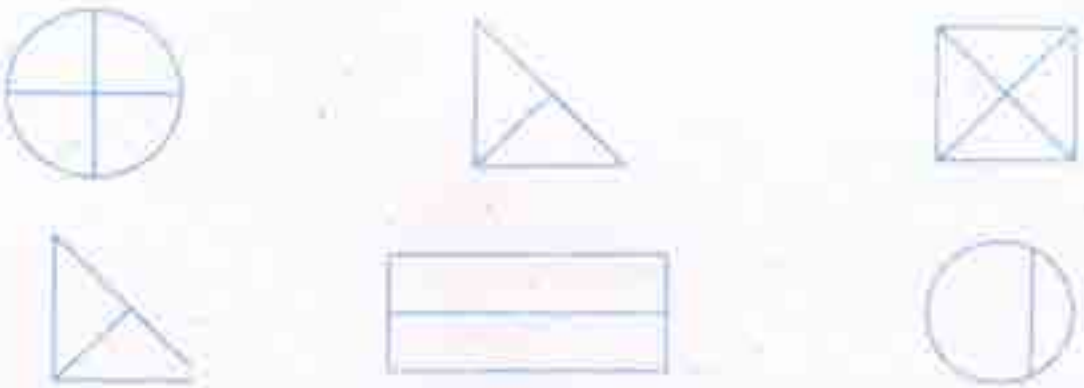


Here, each shape or figure is cut into a number of parts. Some in equal parts and some in unequal parts.

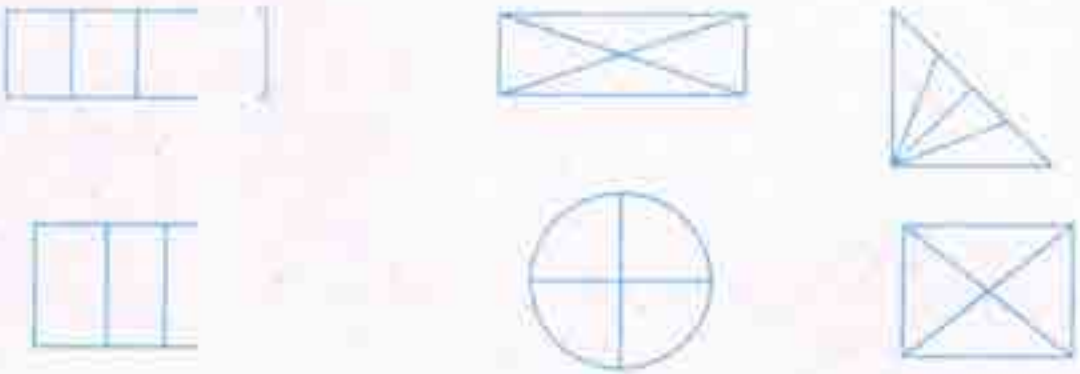


Activity 1

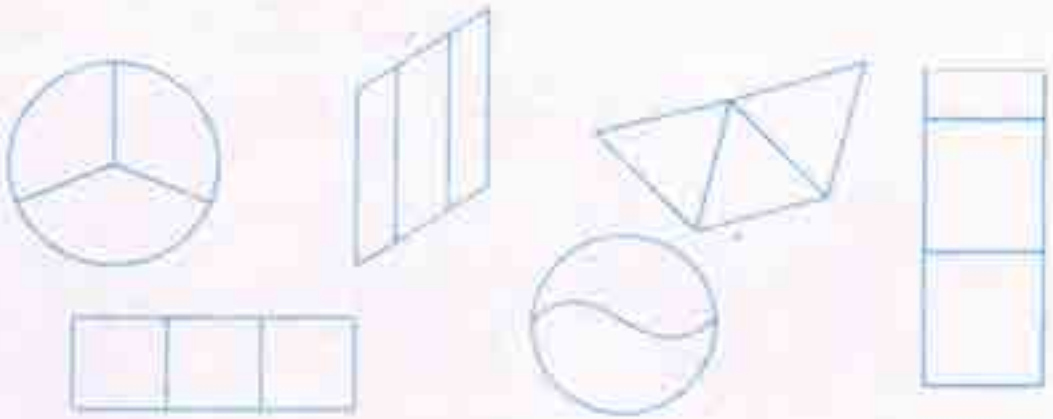
1. Mark a tick (✓) on the figures are divided into two equal parts.



2. Mark a tick (✓)on the figures which are divided into equal parts.



3. Mark a tick (✓) on the figures which are divided into three equal Parts.



One half, one third and one fourth of a whole

When whole is cut or divided into two equal parts, each part is called one half of the whole.

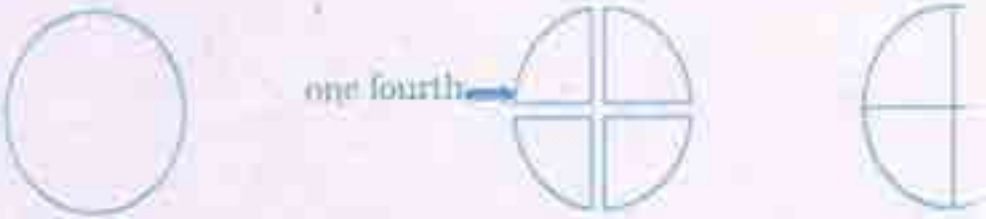
A whole

whole

One half is written as ½

Two halves make

When a whole is cut or divided into four equal parts, each part is called one fourth of the whole.



A whole

whole

Four fourths make

One fourth is Written as $\frac{1}{4}$. One Fourth is called a quarter

When a whole is cut or divided into three equal parts, each part is called one third of the whole.

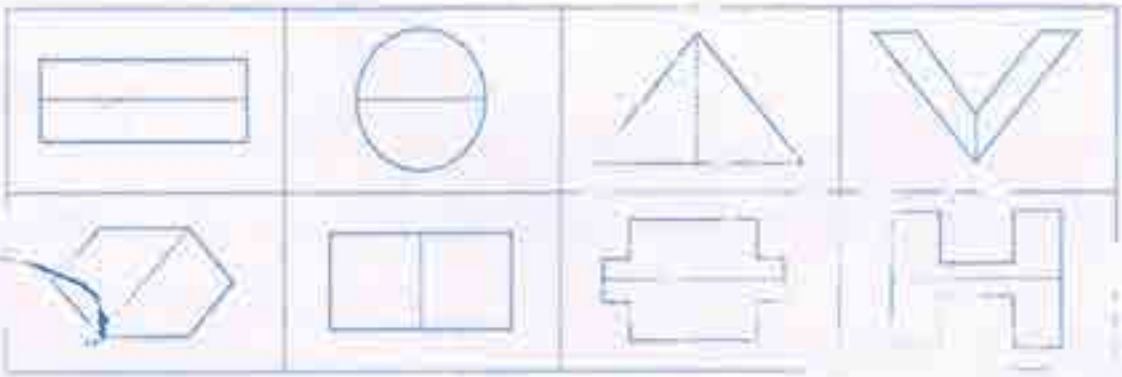
A whole

One third is written as $\frac{1}{3}$

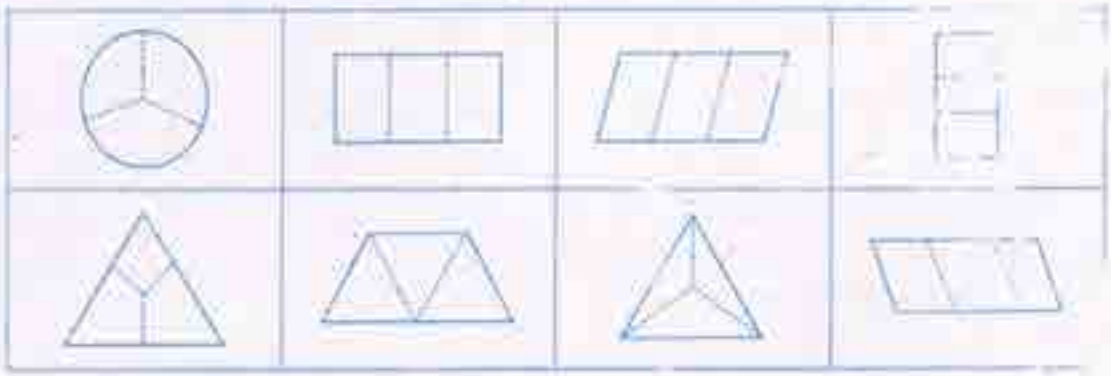
Three thirds make a whole

Activity II

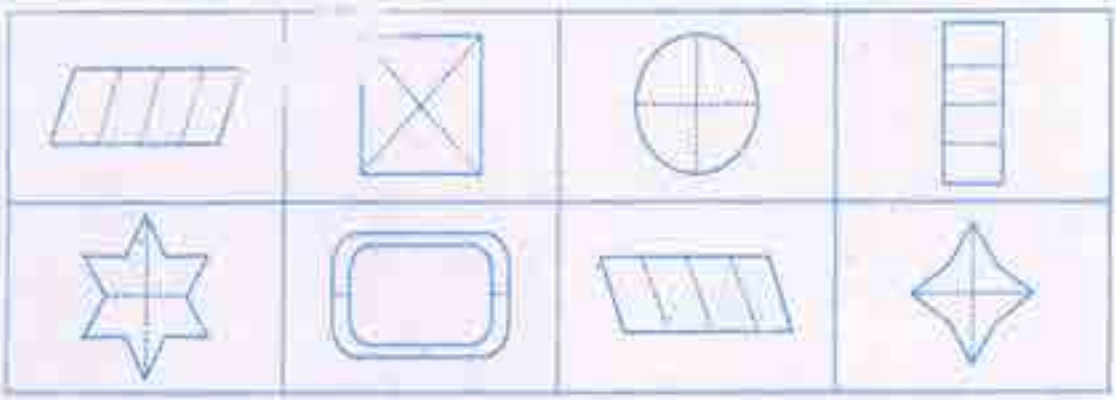
1. Each shape below is a whole cut into two equal parts by a dotted line. Shade half of the shapes.



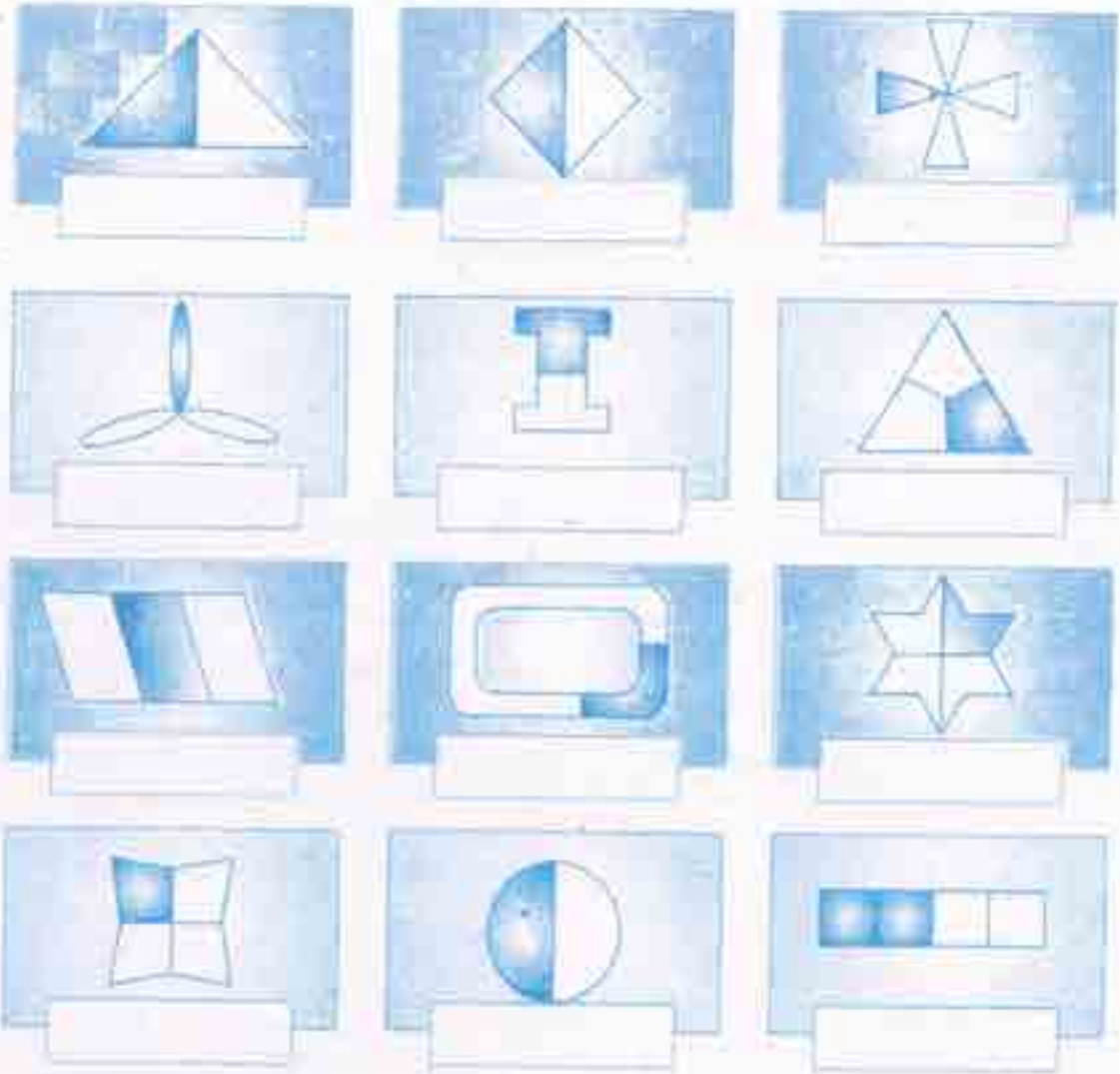
2. Each Shape shown below is a whole cut into three equal parts by dotted lines. Shade one third of the shapes.



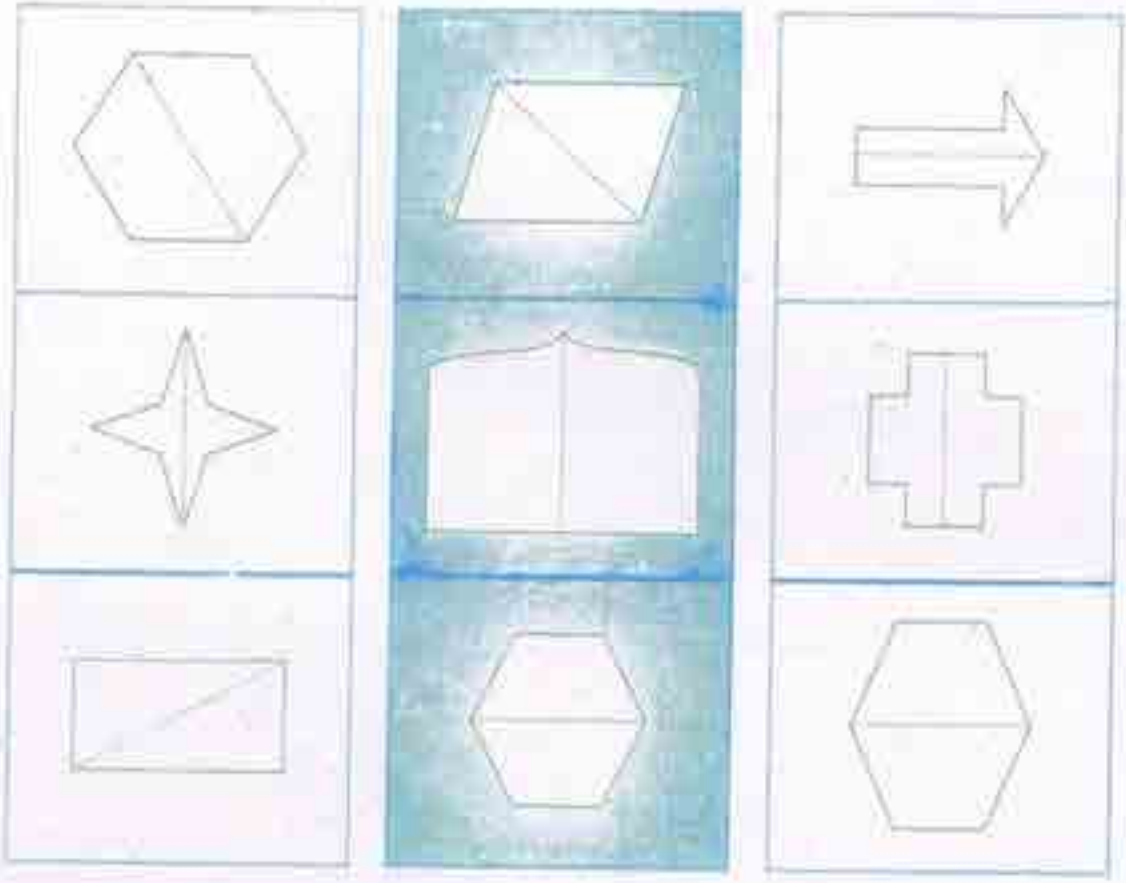
3. Each shape shown below is a whole cut into four equal parts by dotted lines. Shade one fourth of the shapes.



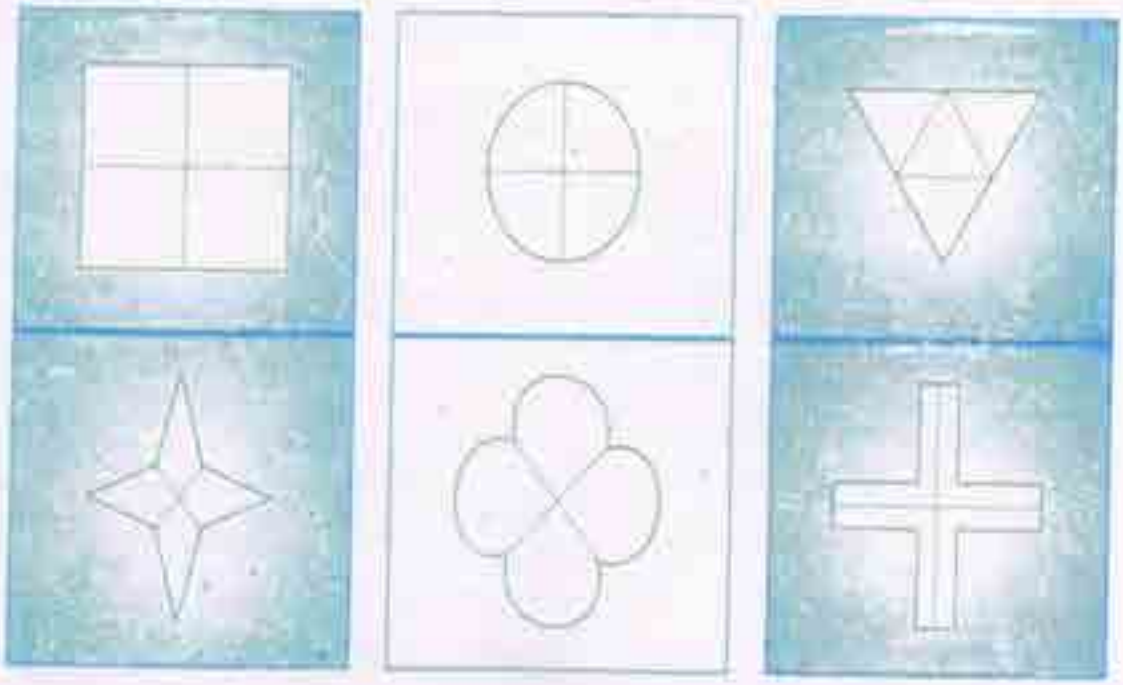
4. Write below each figure, one half, one third or one fourth for the shaded part of the figure :



5. Colour one half of each shape:

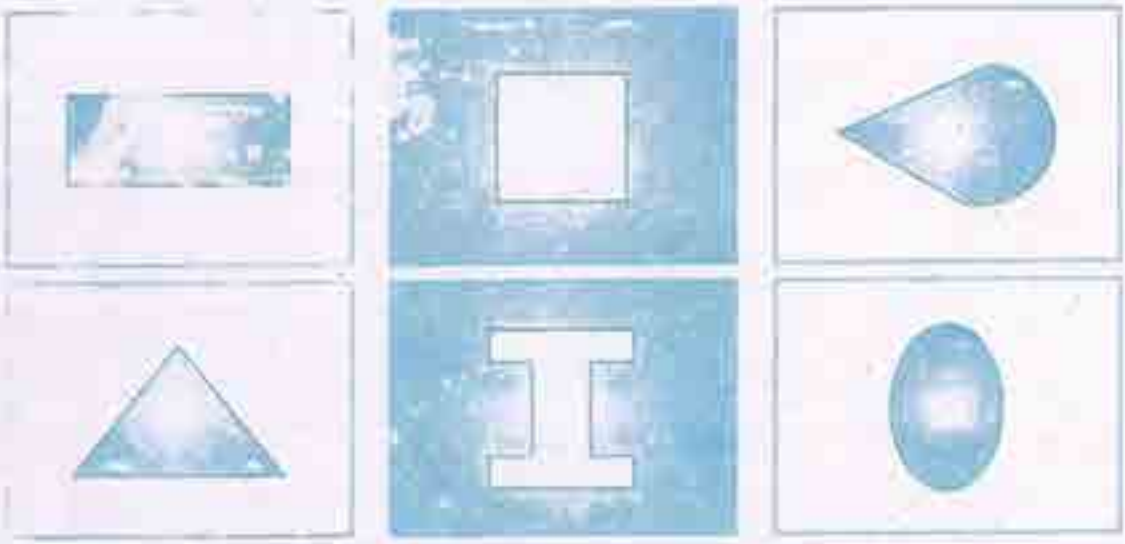


6. Colour one fourth of each shape:

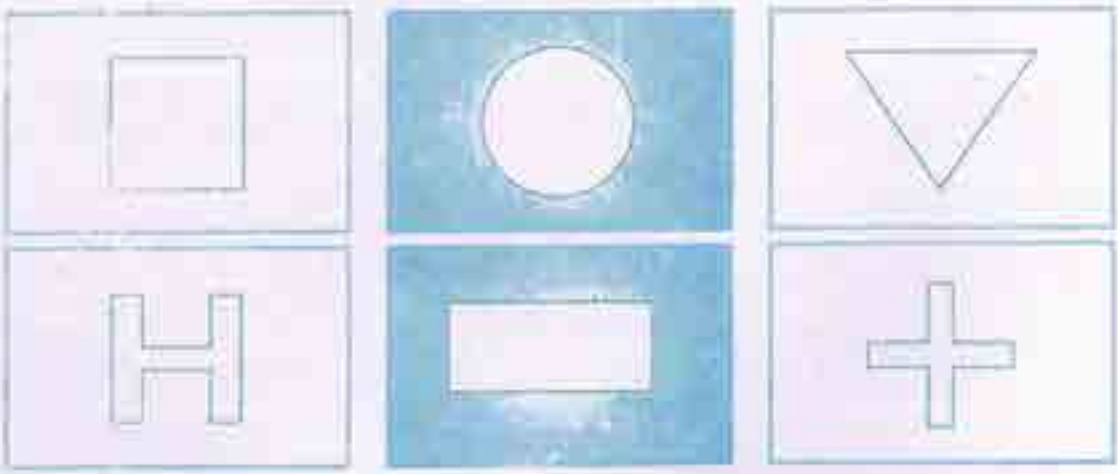


7. Colour one third of each shape:

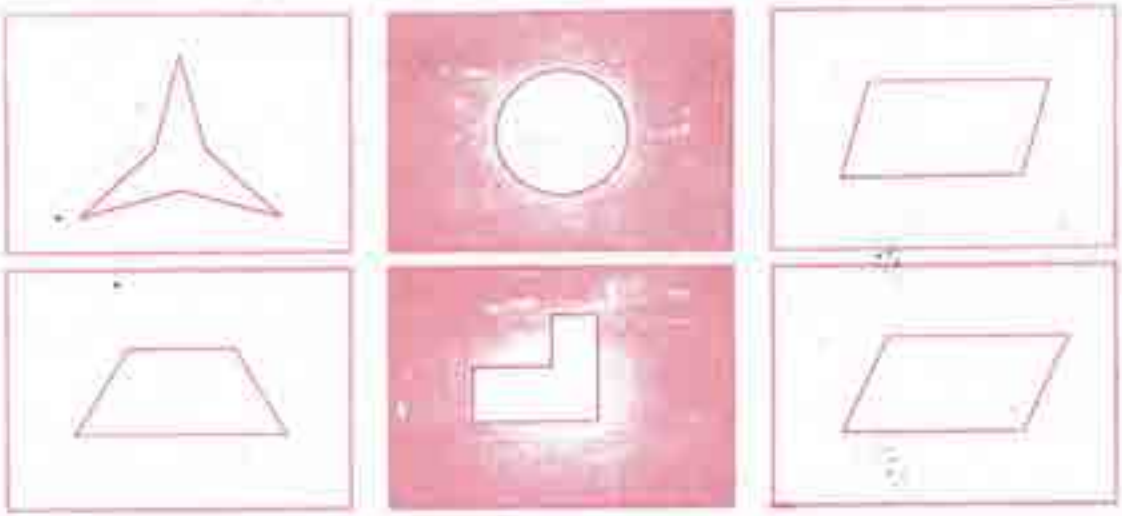
8. Draw a dotted line to cut each shape given below into two equal parts. Colour the two parts, using different colours.



9. Draw lines to cut each shapes given below into four equal parts. Colour the four parts, using different colours.



10. Draw lines to cut each shape given below into three equal parts. Colour the three parts, using different colours.



Parts of Collection

Here is a collection of 12 stars

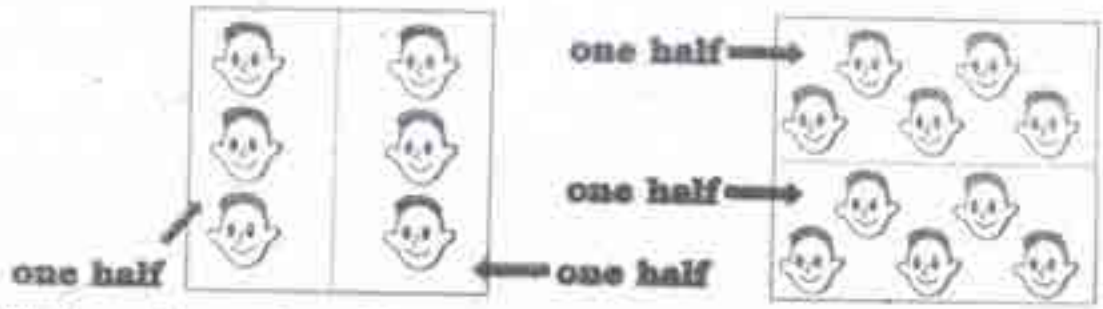
It can be divided in 3 equal parts

It can be divided into 2 equal parts

It can be divided into 4 equal parts

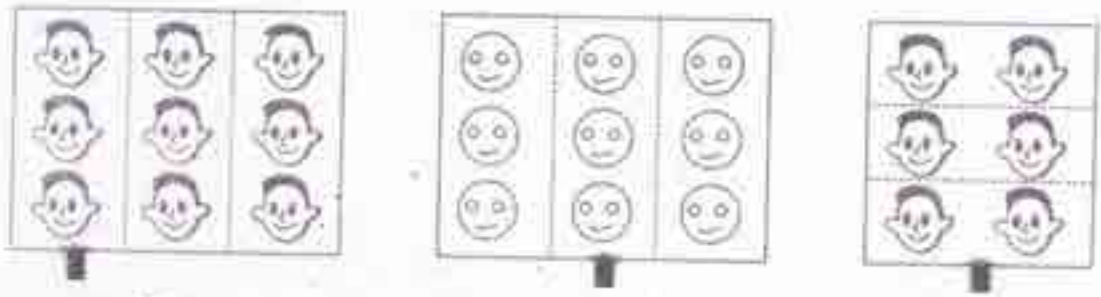
10. One half, one third, and one fourth of a collection

When a collection is divided into 2 equal parts, each part is one half $\left(\frac{1}{2}\right)$ of the collection



To know the number of objects (or shapes) in one half of a collection, we divide the number of objects (or shapes) in the collection by 2.

When a collection is divided into 3equal parts, each part is one third $\left(\frac{1}{3}\right)$of the collection.



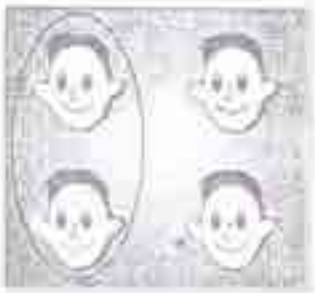
To know the number of objects (or shapes) in one third of a collection, we divide the numbers of objects (or shapes) in the collection by 3.

When a collection is divided into 4 equal parts, each part is one fourth or a quarter $\left(\frac{1}{4}\right)$of the collection.

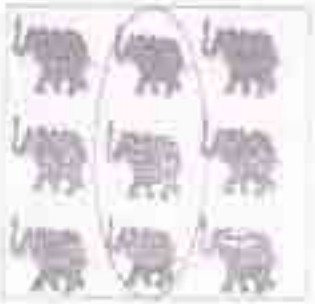
To know the number of objects (or shapes) in one fourth (or quarter) of a collection, we divide the number of objects (or shapes) in the collection by 4.

Activity III

1. Encircle one half of each collection. The first one is done for you.



2. Encircle one third of each collection. The first one is done for you.



3. Encircle one fourth (or a quarter of each collection. The first one is done for you.

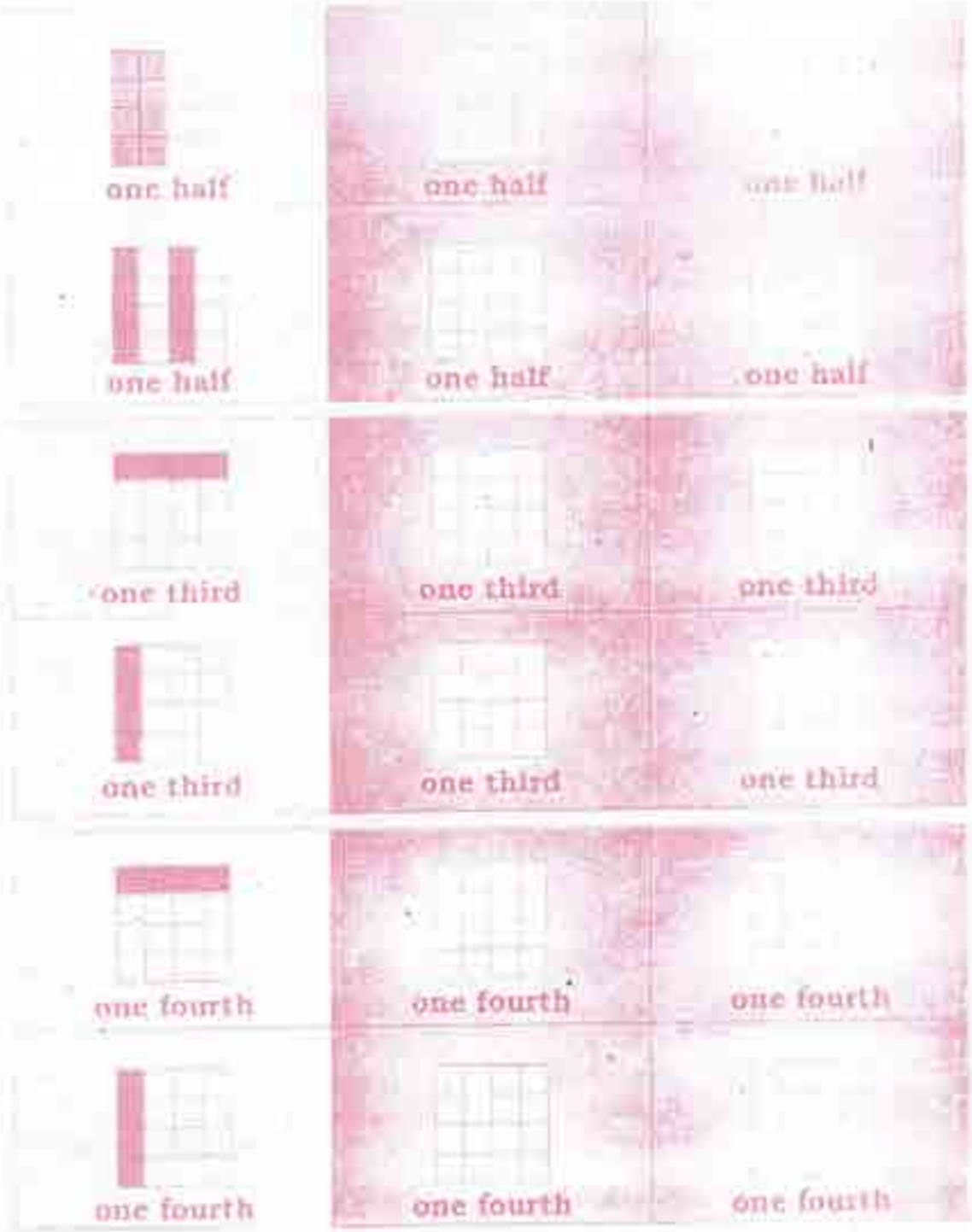


4. Shape or colour one half of each collection. The first is done for you.

5. Shade or colour one third of each collection. The first one is done for you.

6. Shade or colour one fourth for the collection. The first one is done for you.

7. Look at the shading pattern of the figures given in the first column. Shade the figures in the second and third columns in a similar way.



8. Answer the following questions:

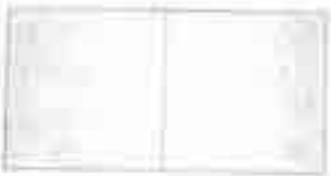
1. If a collection has 10 objects, how many objects are there in one half of the collection?
2. If a collection has 8 objects, how many objects are there in one fourth of the collection?
3. If a collection has 15 objects, how many objects are there in one third of the collection?
4. If a collection has 24 objects, how many objects are there in one third of the collection?
5. If a collection has 16 objects, how many objects are there in one fourth of the collection?
6. If a collection has 20 objects, how many objects are there in one fourth of the collection?
7. If a collection has 12 objects, how many objects are there in one half of the collection?

5. Folding and cutting of a whole

(a) One half

Take a sheet of paper of paper

Fold it by bringing two opposite edges together



Unfold the sheet. There is a line in the middle which divides the sheet

lves.two in

Take a sheet of Paper

Fold it as shown above

Unfold the sheet. There is a line in the Middle which divides the sheet in two halves.

Take a sheet of paper

Fold it as shown above

Unfold the sheet. There is a line in the middle which divides the sheet in two halves.

(b) One fourth

Take a sheet of paper

Fold it by bringing the opposite edges together

Fold it again

Unfold the sheet. There are three lines which divide the sheet in four quarters.

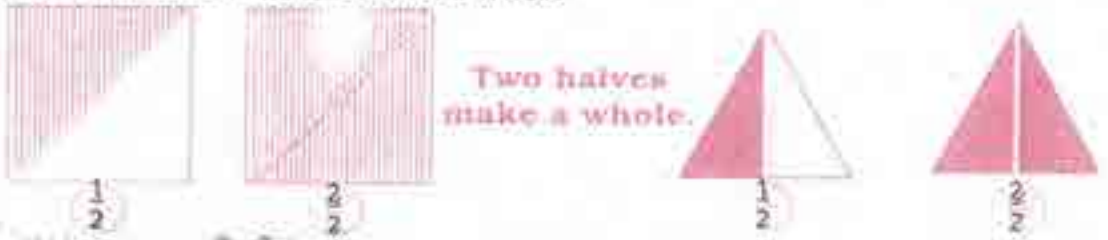
Take a sheet of paper

Fold it.

Again fold the folded sheet

unfold the sheet. The sheet is divided into four equal parts.

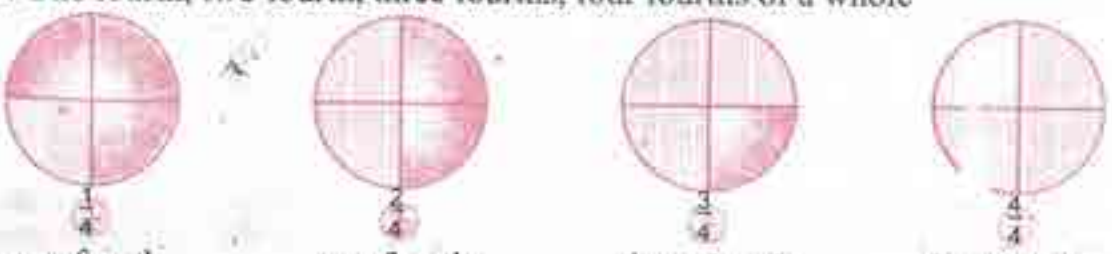
6. One half and two halves of a whole



One half = two halves or a whole (1)

One half | two halves or a whole (1)

7. One fourth, two fourth, three fourths, four fourths of a whole



one fourth | two fourths | three fourths | four fourths

Four fourths make a whole

8. One third, two thirds, three thirds of a whole

one third | two thirds | three thirds or a whole (1)

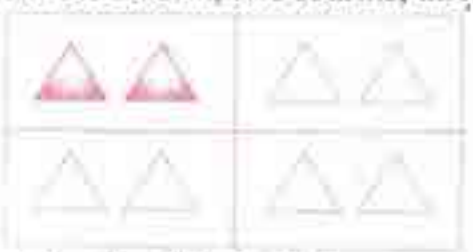
Three thirds make a whole

9. One half and two halves of a Collection

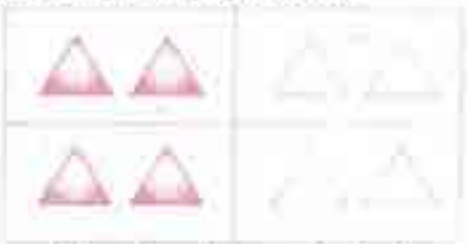
One half is shaded | Two halves are shaded or all are shaded

Two halves make a whole

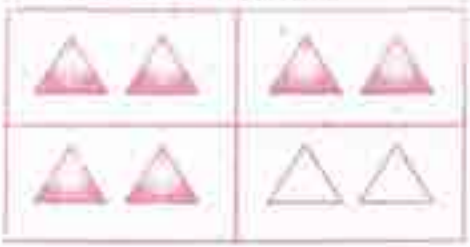
10. One fourth, two fourths, three fourths, four fourths of a collection



One fourth is shaded



Two fourths are shaded

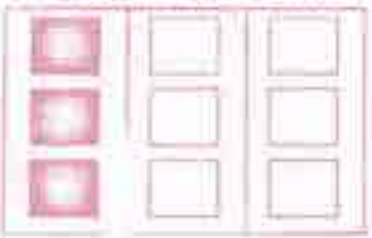


Three fourths are shaded.

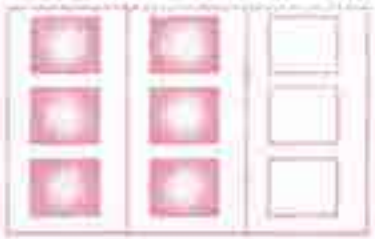
Four fourths are shaded or all are shaded.

Four fourths make a whole.

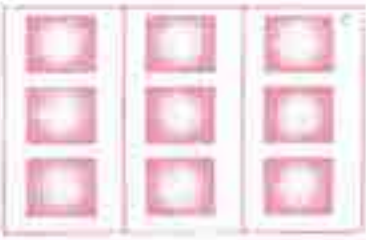
11. One third, two thirds, three thirds of a collection



One third is shaded.



Two thirds are shaded.

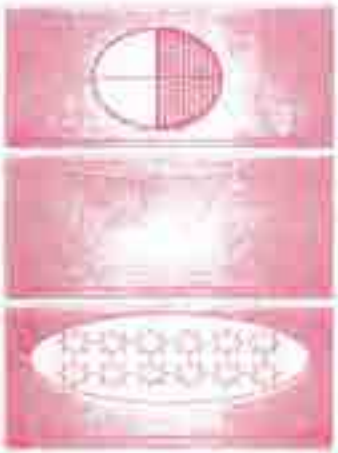


Three thirds are shaded or all are shaded.

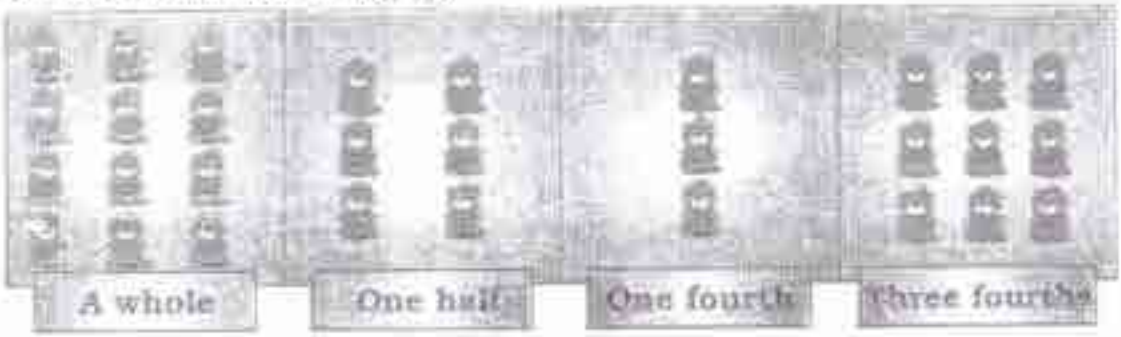
Three thirds make a whole.

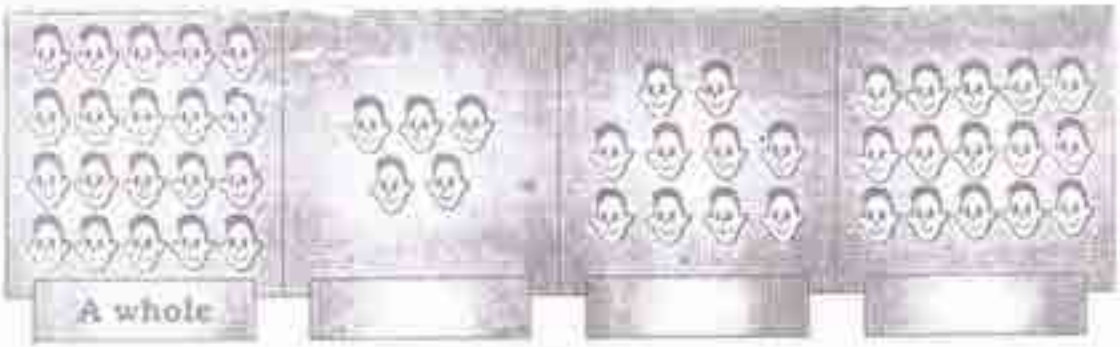
Activity IV :

1. What fraction does the coloured portion show?

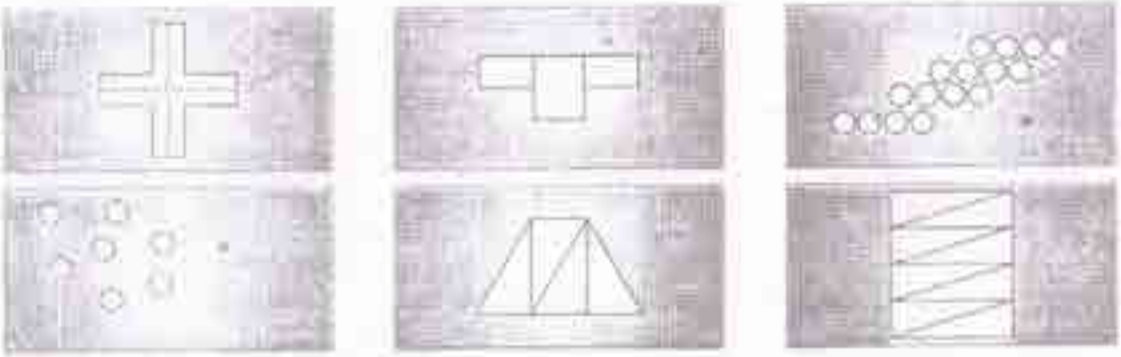


2. Write the fraction in the box



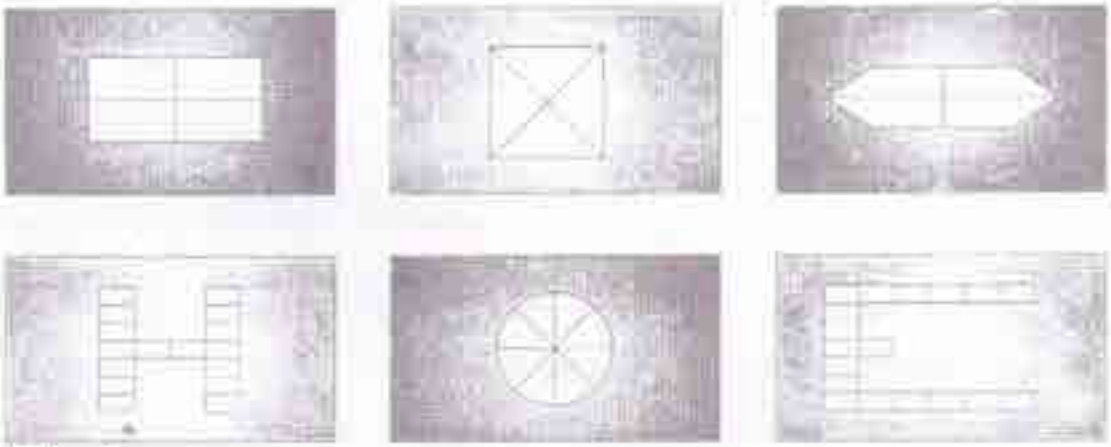


3. Colour one fourth of the whole or the collection :



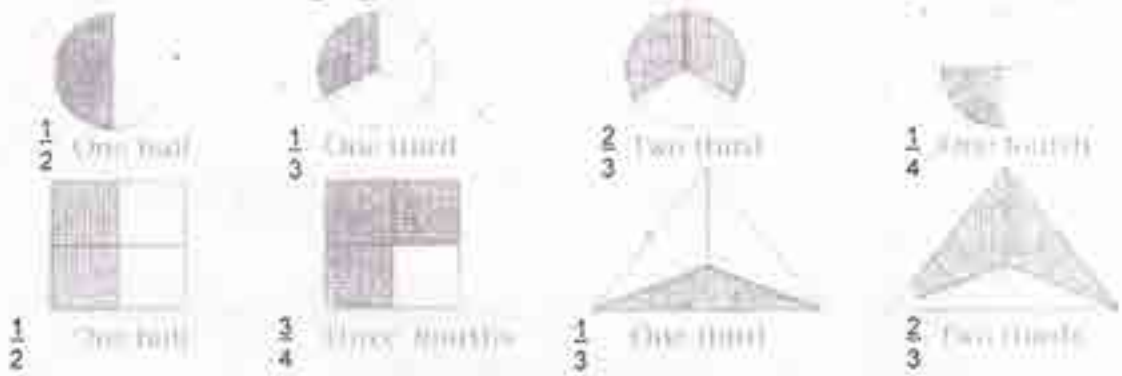
4. Colour two thirds of the whole or the collection :

5. Colour three fourths of the whole or the collection :



A Fraction

Look at the following figures :



We write the above fractional numbers, in symbols, as :

one half — $\frac{1}{2}$ two thirds — $\frac{2}{3}$

one third — $\frac{1}{3}$ three fourths — $\frac{3}{4}$

one fourth — $\frac{1}{4}$

The Symbols $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{2}{3}, \frac{3}{4}$ etc. are called fractions.

In $\frac{1}{2}$, the bottom number 2 indicates that the whole is divided into 2 equal parts. The top number 1 indicates that only 1 part is considered.

Similarly,

In $\frac{1}{3}$, the bottom number 3 indicates that the whole is divided into 3 equal parts. The top number 1 indicates that only 1 part is considered.

In $\frac{3}{4}$, the bottom number 4 indicates that the whole is divided into 4 equal parts. The top number 3 indicates that only 3 parts are considered.

Numerator and denominator of a fraction

Look at the following figures and read the fraction written below it :

$\frac{1}{2}$

$\frac{1}{4}$

A fraction is made up of two numbers written one over the other, namely a top number and a bottom number.

The bottom number tells us into how many equal parts a whole (or a collection) has been divided. We call it the denominator.

The top number tells us how many of those equal parts have been taken for consideration. We call it the numerator.

Look carefully at shapes, shown below and their corresponding shaded portions

$\frac{1}{2}$

$\frac{1}{3}$

$\frac{2}{3}$

$\frac{3}{5}$

Here

In $\frac{2}{3}$, the numerator is 2 and the denominator is 3.

In $\frac{3}{4}$, the numerator is 3 and the denominator is 4.

In $\frac{1}{3}$, the numerator is 1 and the denominator is 3.

Reading a fraction:

$\frac{1}{2}$ is read as half or 1 over 2 (one by two)

$\frac{1}{3}$ is read as one third or 1 over 3 (one by three)

$\frac{2}{3}$ is read as two thirds or 2 over 3 (two by three).

$\frac{3}{4}$ is read as three fourths or 3 over 4 (three by four).

Note: The fraction of the type $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{6}$, $\frac{7}{6}$, $\frac{3}{7}$, $\frac{2}{9}$, etc. wherein the numerator is smaller than the denominator are called proper fractions.

Activity V :

1. Write the numerator and denominator of each of the following Fraction :

Fraction	Numerator	Denominator	Fraction	Numerator	Denominator
$\frac{1}{3}$			$\frac{1}{2}$		
$\frac{1}{4}$			$\frac{3}{4}$		
$\frac{2}{3}$			$\frac{4}{5}$		

2. Write fraction for the numerator and denominator given below:

numerator =2 ☐ denominator = 8 ☐

denominator = 3 ☐ merator = 5 ☐

numerator = 3 ☐ denominator = 3 ☐

denominator = 4 ☐ numerator = 2 ☐

3. In the fraction $\frac{3}{4}$,

(a) what is 4 called ? _____

(b) what is 3 called ? _____

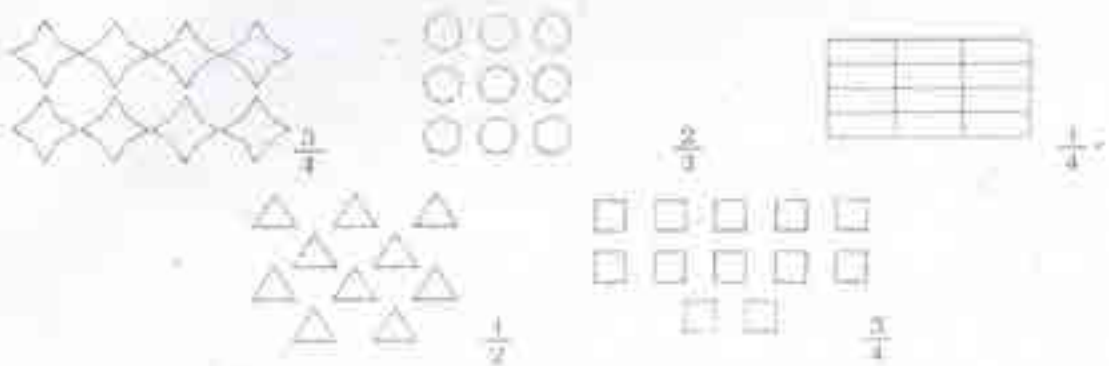
(c) how do we read the fraction ? _____

(d) what does 4 tell us ? _____

4. Write fraction for each shaded part :

5. Write in words :

6. Shade the portion corresponding to the given fraction :



7. Write any five fractions in the space given below :