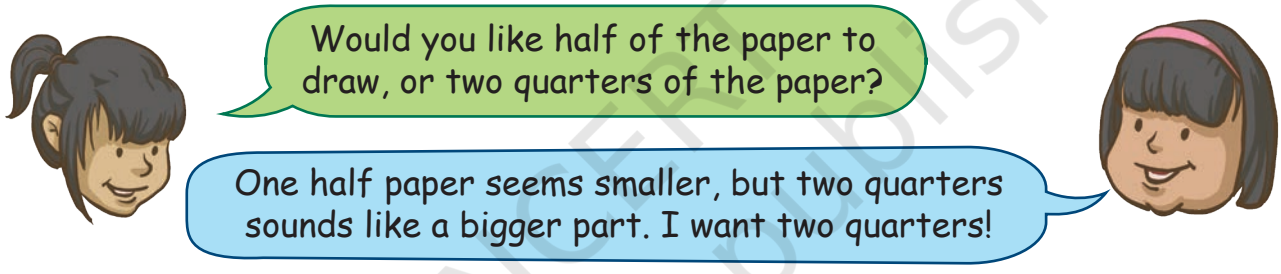
Chapter
5

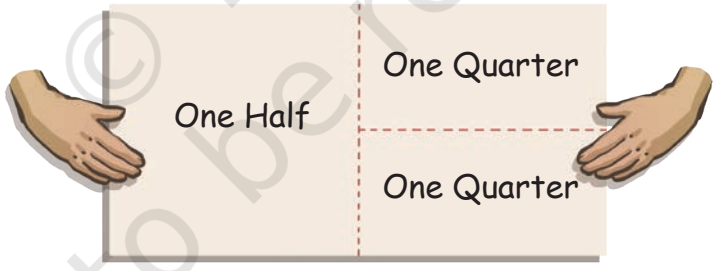
Sharing and Measuring

0433CH05

PARTS AND WHOLES

Ikra and her little sister, Samina, decide to make a drawing, but they are left with a single drawing sheet. Ikra wants to share the paper by dividing it in half, but Samina insists on having a bigger part of the paper. Ikra thought for a moment and proposed a solution.



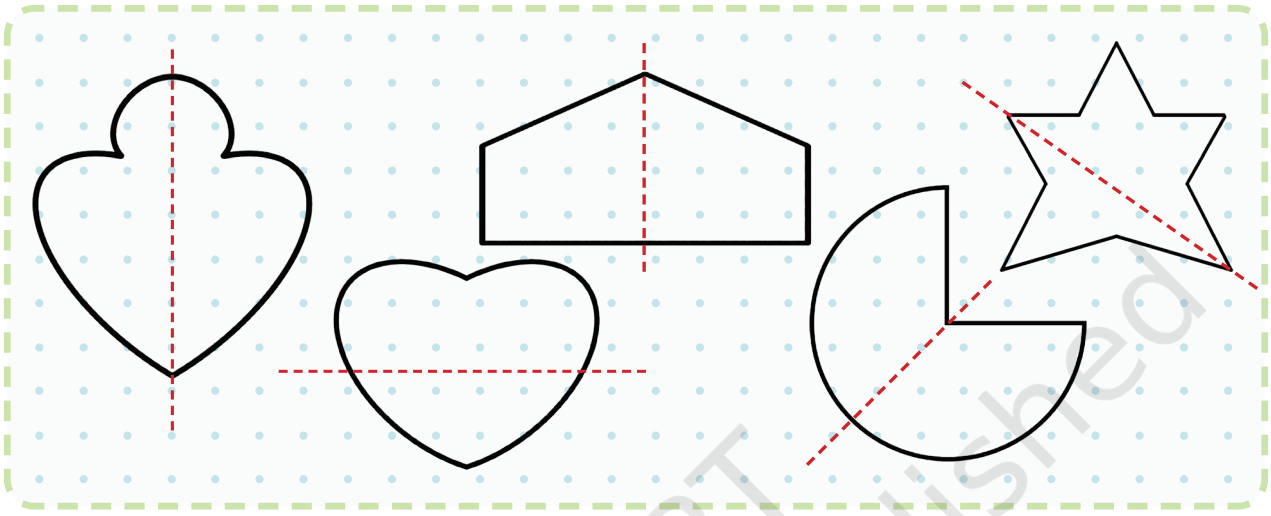


Let Us Discuss

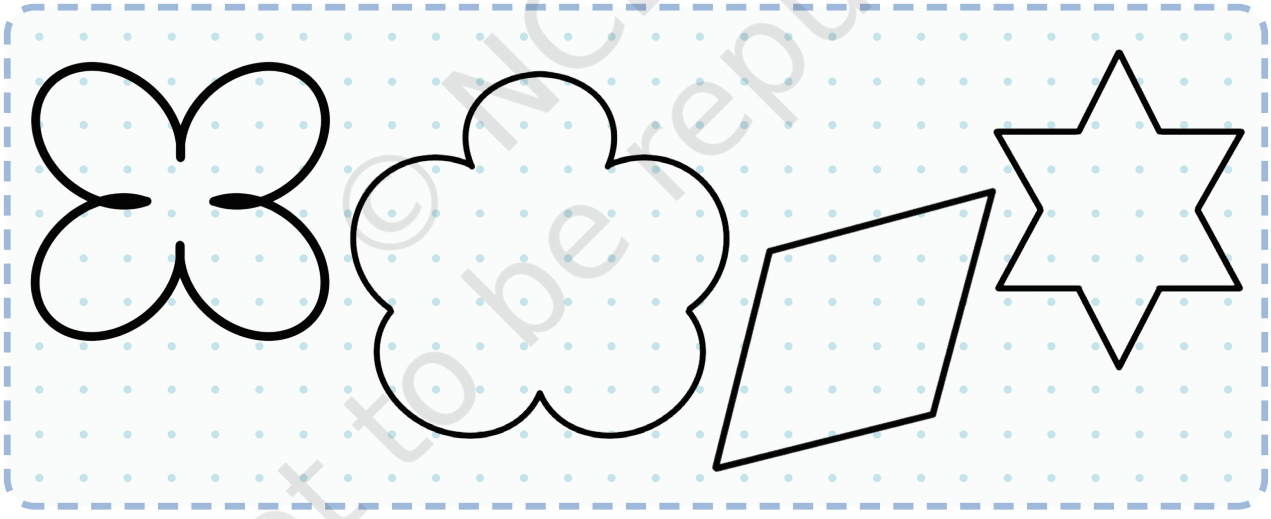
1. Which part of the paper you would have chosen—one half or two quarters? Why?
2. Do you think Ikra shared the paper equally? Why? Try with a paper.
3. How do you know that the paper has been divided equally?
4. Why do you think Samina chose two quarters of the paper?

Let Us Do

1. Samina has divided some figures into two parts. Colour the figures that are divided into halves correctly. How did you get the answer?

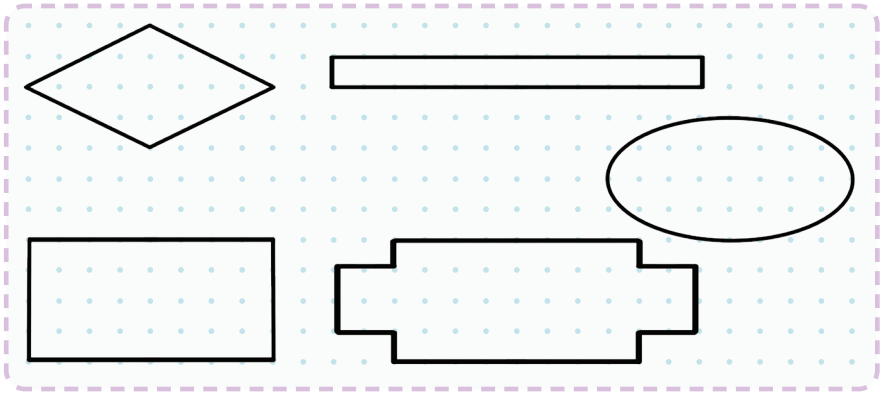


2. Divide the shapes into halves by drawing a line.



When an object is divided into two equal parts, then each part is called a half. We write half as $\frac{1}{2}$.

3. Divide these shapes into 4 equal parts/quarters.



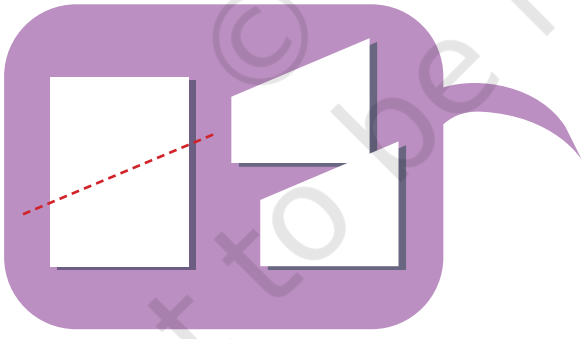
When an object is divided into four equal parts, then each part is called a quarter. We write quarter as $\frac{1}{4}$.

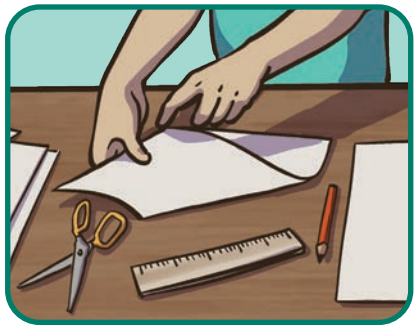
Think: How would we write the fraction for each part if we divided an object into 5 equal parts?

Many Ways to Make Halves and Quarters

Let Us Try

1. In how many different ways can you fold/cut a rectangular paper in two equal parts? Try it with a rectangular paper.

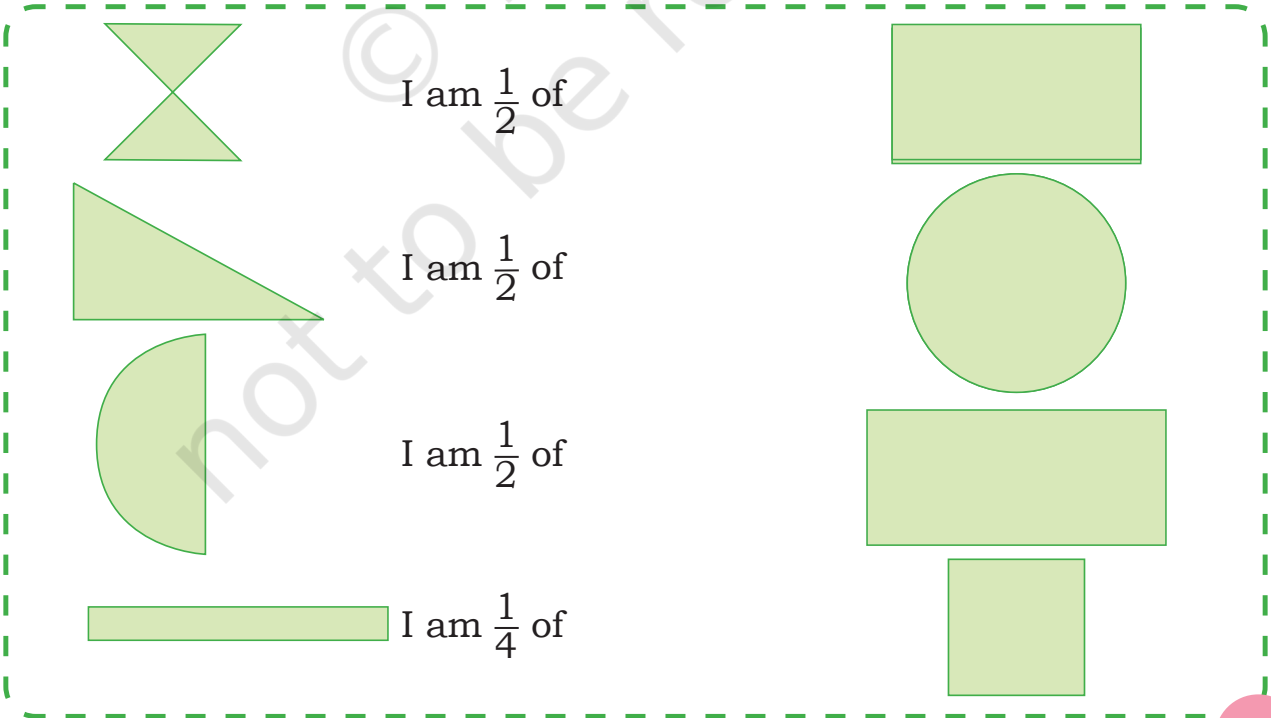




Note for Teachers: Guide students to write fractions using symbols. Begin with examples like $\frac{1}{2}$ and $\frac{1}{4}$. Provide numerous opportunities for practice with other fractions by paper folding and drawing images.

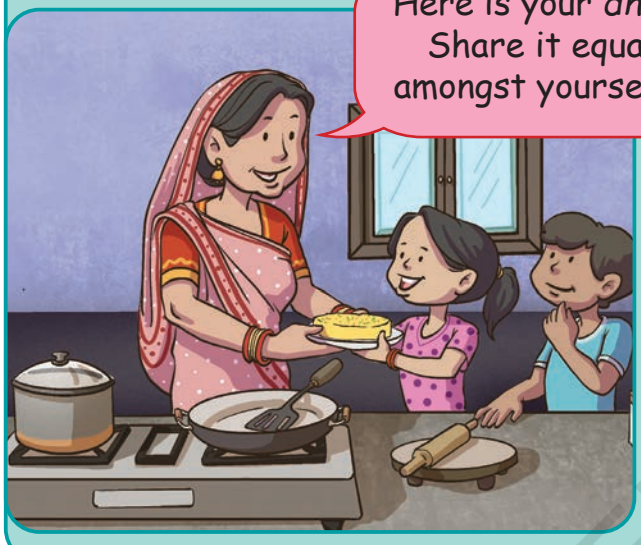
2. Now try to draw and show five different ways in which we can fold/ cut a rectangle into four equal parts ($\frac{1}{4}$ or quarter).

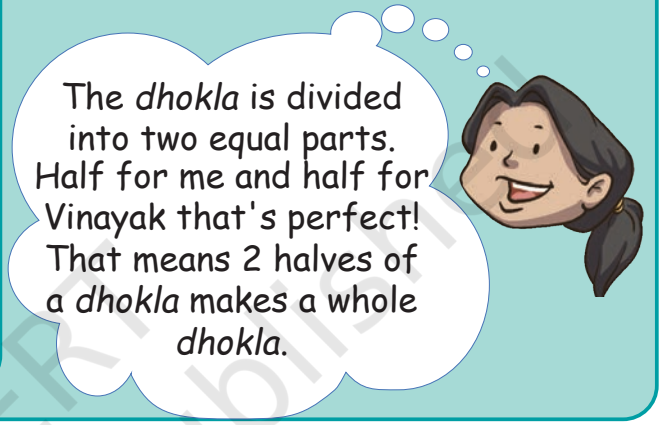
3. Match the following parts with their corresponding wholes.



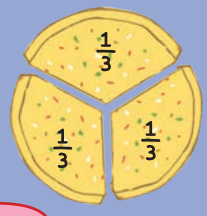
DING DONG BELL!!

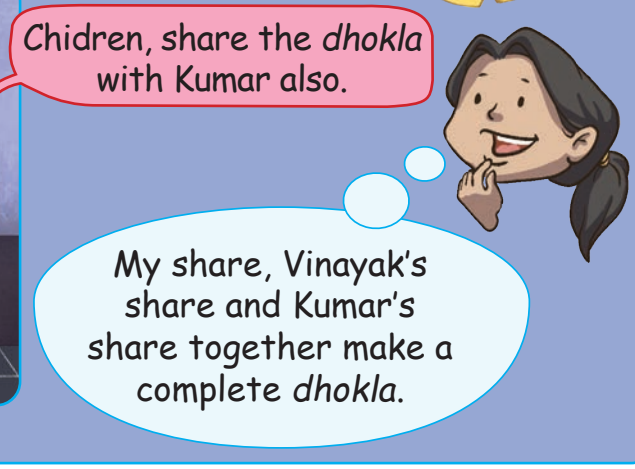
Sumedha's mother made yummy dhokla!





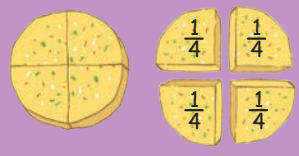
DING DONG! The doorbell rang.





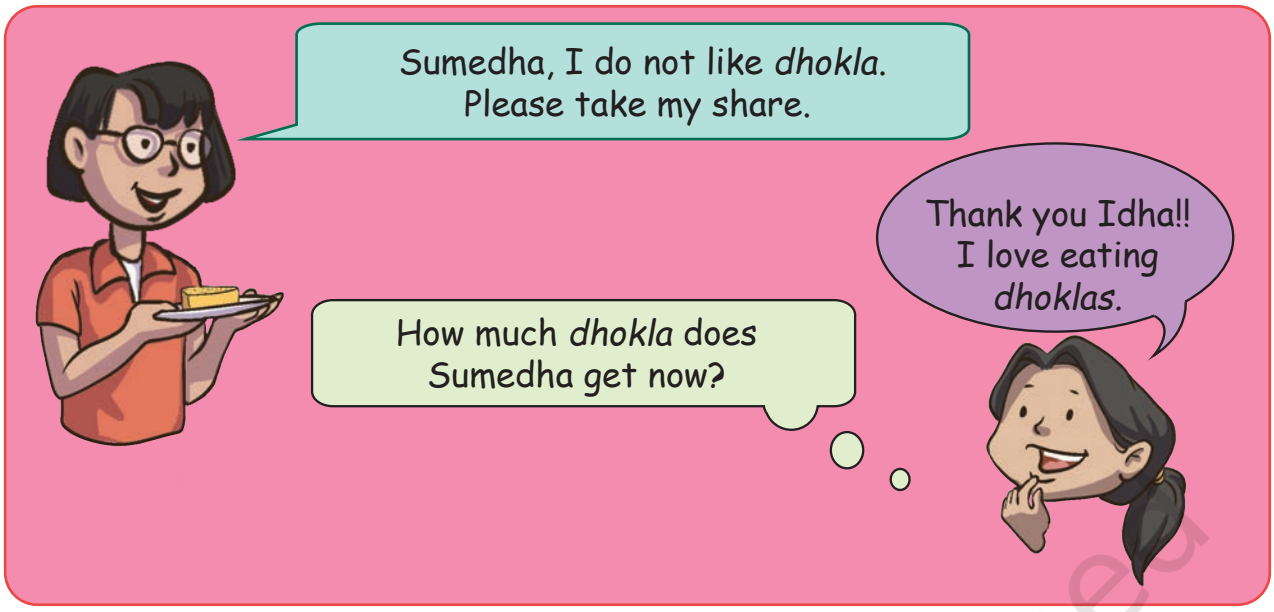
DING DONG! Sumedha's cousin Paridhi arrives.

The *dhokla* is divided into four equal parts. Each one of us will get one-fourth of the *dhokla*.



DING DONG! Their neighbour Idha arrives filling the house with happy greetings.

More sharing!!! An even smaller slice for me now. I will get just $\frac{1}{5}$ of my favourite *dhokla*.



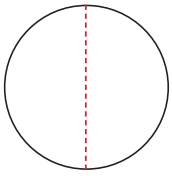
Let Us Discuss

1. What is Sumedha observing about her share as each guest comes in?
2. In which situation will Sumedha get to eat more *dhokla*: when shared among 9 people or 11 people?
3. How many pieces of $\frac{1}{6}$ would make a complete *dhokla*?
4. What would be Sumedha's share, if Idha and Vinayak both give their share of *dhokla* to her?

Let Us Do

1. How much *dhokla* would each person get if it was shared equally among 6 people? Try also with 8 people. Who will get the bigger pieces of *dhokla*? Draw and explain.

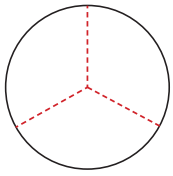
2. Shade a portion of the *dhokla* to represent the fraction Sumedha would get when the *dhokla* is shared equally among the given number of people. Discuss why the fractions get smaller.



2 people

Sumedha's share = $\frac{1}{2}$

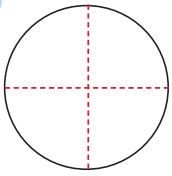
Half



3 people

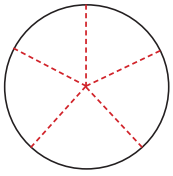
Sumedha's share = $\frac{1}{3}$

One-third



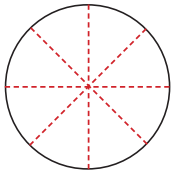
4 people

Sumedha's share =



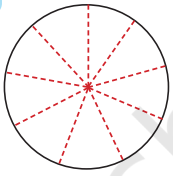
5 people

Sumedha's share =



8 people

Sumedha's share =



9 people

Sumedha's share =

Let Us Discuss

Use the fraction kit given at the end of your textbook and answer the following questions.

1. Share your observations about the different pieces and the whole.
2. Take any two different pieces of the fraction kit and compare them. Discuss which one is smaller and why.
3. Sumedha noticed that when a whole is equally divided in a larger number of parts, each part gets smaller. Do you agree with Sumedha?
4. Sumedha says, "When I join 5 pieces of $\frac{1}{5}$, it makes a whole *dhokla*." Try to do it yourself with your fraction kit.
5. Sumedha says that this part is one-third of the complete whole. Why is she saying so?

Note for Teachers: Narrate the story of *dhokla* using a circular paper to help students understand that sharing among a larger number of people leads to a smaller share for each person.

Let us try to fill in the blanks. Both the fractions are parts of the same whole. Use your fraction kit, if necessary. Share your thoughts.

1. _____ is greater than _____ ($\frac{1}{5}$, $\frac{1}{4}$).
2. _____ > _____ ($\frac{1}{9}$, $\frac{1}{6}$).
3. $\frac{1}{6}$ _____ $\frac{1}{8}$.
4. _____ is smaller than _____ (____ , ____).

My Flower Garden

Idha has seeds of 5 different flowering plants—Rose, Mogra, Lily, Marigold, and Jasmine. She decides to plant them equally in her garden as shown in the picture.

Rose Mogra Lily Marigold Jasmine

I have very few Lily seeds so I will plant Roses in two parts.

Her revised plan is shown here.

Look at the garden and answer the questions.

Mogra in $\frac{1}{5}$ or one-fifth part of the garden.

Marigold in _____ part of the garden.

Jasmine in _____ part of the garden.

Rose in $\frac{1}{5}$ and $\frac{1}{5}$ part or a total of $\frac{2}{5}$ (two-fifths) part of the garden.

Look at the garden and answer the questions.

Mogra in _____ part.

Marigold in _____ part.

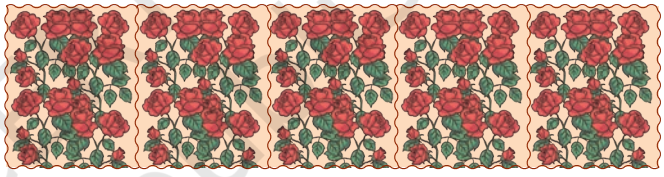
Rose in $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ part or a total of $\frac{3}{5}$ (three-fifths) part.

Look at the garden and answer the questions.

Marigold in _____ part.

Rose in $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$ or a total of $\frac{4}{5}$ (four-fifths) part.

Rose in $\frac{5}{5}$ part or the complete garden.



Let Us Do

Make a flower garden with seven flowering seeds—Mogra, Marigold, Jasmine, Rose, Lily, Hibiscus, and Periwinkle?

Mogra

a) Marigold in one-seventh ($\frac{1}{7}$) and Rose and Hibiscus in three-sevenths ($\frac{3}{7}$) part each.

Rose

Marigold

b) Lily in three-sevenths ($\frac{3}{7}$), Marigold in two-sevenths ($\frac{2}{7}$) and Periwinkle in another two-sevenths ($\frac{2}{7}$).

Lily

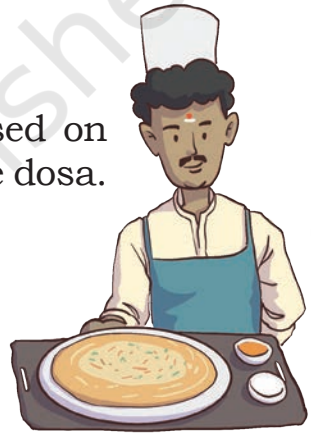
Jasmine

c) Mogra in five-sevenths ($\frac{5}{7}$) part and Hibiscus in two-sevenths ($\frac{2}{7}$).

Hibiscus

Periwinkle

DREAM DOSA DESIGNER!!

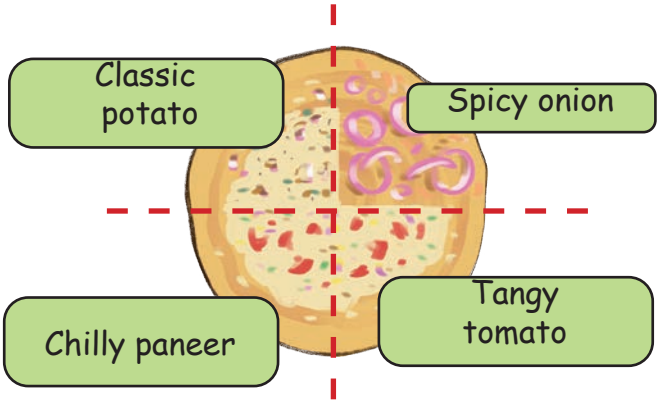


Karan makes dosas differently. He makes dosas based on the customer's choice with various toppings on a single dosa. Customers can choose from the following toppings:

1. Classic potato
2. Spicy onion
3. Chilly paneer
4. Tangy tomato

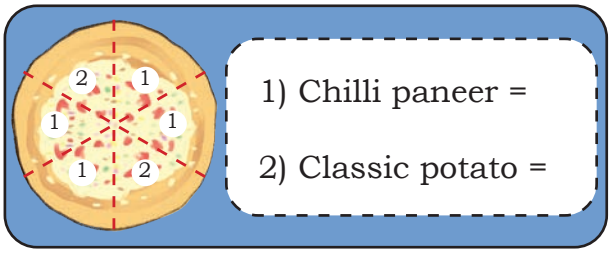
Help Karan in making these special dosas.

Flavour of Dosa	Part of the Dosa
Classic potato	$\frac{1}{4}$
Spicy onion	$\frac{1}{4}$
Chilly paneer	$\frac{1}{4}$
Tangy tomato	$\frac{1}{4}$



Do It Yourself

Write the fractions for each of the toppings in the following dosas.



1) Chilli paneer =

2) Classic potato =

1) Tangy tomato =

2) Classic potato =

3) Spicy onion =

1) Spicy onion =

2) Tangy tomato =

1) Tangy tomato =

2) Classic potato =

3) Spicy onion =

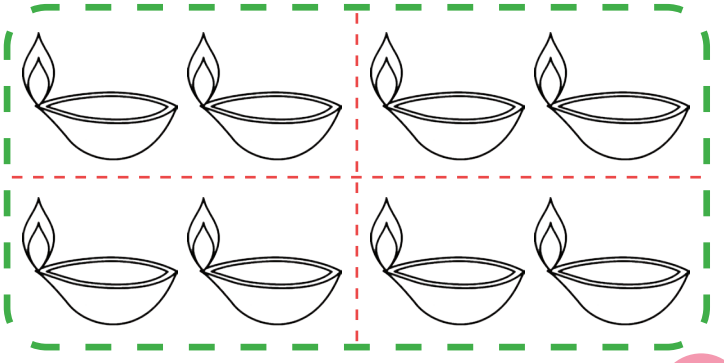
Now you can make different dosas based on demand.

Make a dosa with $\frac{2}{3}$ topping of Spicy onion, $\frac{1}{3}$ of Classic potato.

Make a dosa with $\frac{3}{8}$ of Classic potato, $\frac{1}{8}$ of Chilly paneer and $\frac{4}{8}$ of Tangy tomato mix.

Let Us Explore

Meena has 8 diyas. Colour $\frac{1}{4}$ of her diyas red. To find $\frac{1}{4}$, let us divide the number of diyas into 4 equal parts. Can you see how to divide the diyas into 4 equal parts? Now colour 2 diyas red.



Let Us Do

Now let us try to find fractions for the situations given below. Circle the appropriate parts in the pictures.

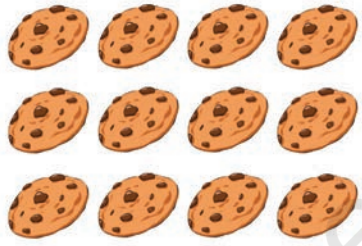
1. There are 12 cookies. What fraction of cookies will each get if the number of children are as follows:

   a) 3 children

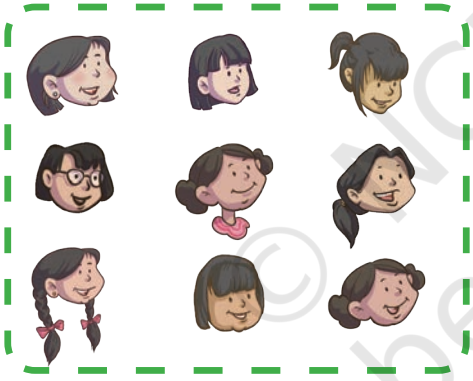
   b) 6 children

   c) 2 children

   d) 4 children



5. Simran calls her school friends for her birthday party. $\frac{1}{3}$ of her friends receive a hairband as their return gift. Place hairbands on $\frac{1}{3}$ of her friends.



6. Draw flowers in $\frac{1}{5}$ of the given number of pots.

Let Us Find Fractions in Our Surroundings

Kadamba is excited to know where we use fractions in daily life. She found some examples below. Help her find more examples and try to draw the images of the same in your notebook.

1. Yesterday Mummy asked to divide a box of *barfis*  into four equal parts. There are 16 *barfis* in the box. Draw a picture of 16 *barfis* and find $\frac{1}{4}$ of the whole. How many *barfis* are in each part?

2. Rohan has a piece of ribbon to decorate his notebook. Mohan's ribbon is one-fourth as long as Rohan's ribbon. How long will Rohan's ribbon be? Draw it.

   Mohan's Ribbon

Try Yourself

Observe your surroundings and think of situations where we use fractions and write any two of them in the space provided below.

1. _____

   _____

   _____

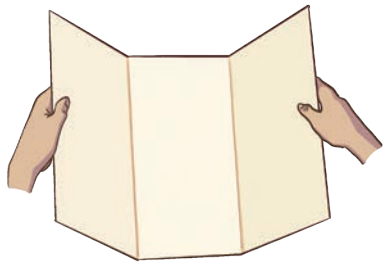
2. _____

   _____

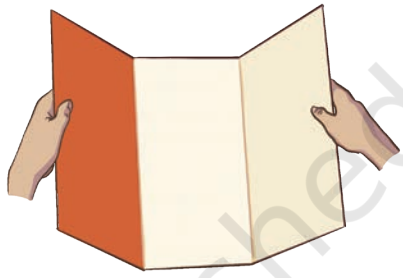
   _____

Let Us Do

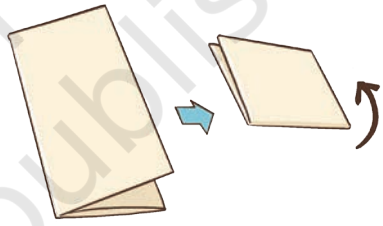
1. Take a rectangular piece of paper and fold the paper into three equal parts and then unfold it.



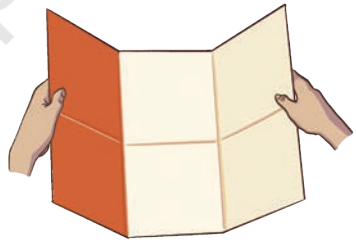
2. Colour one of the three equal parts as shown in the image.



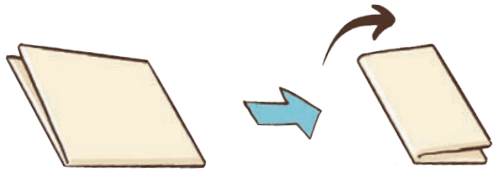
3. Fold the paper back into three equal parts like before, and then fold it in half.



4. Observe the colored part. What is the fraction for the shaded part now? What does this mean?

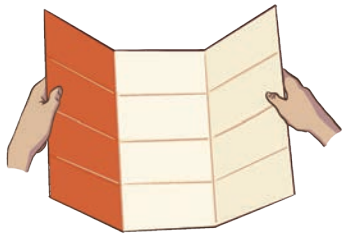


5. Fold the paper again and check how the coloured part changes.



6. Write down what fraction you observe after each fold.

$\frac{1}{3} = \frac{2}{6} =$ ____ $=$ ____ $=$ ____



Let Us Try

Take another piece of paper and try the same starting with two equal parts, and halving every time. Share the findings with your friends.

$\frac{1}{2} = \frac{2}{4} =$ _____ = _____ = _____

Let Us Discuss

Observe the fraction chart and discuss the following questions. You may use your fraction kit also to explore the answers.

1. How many $\frac{1}{4}$s are equal to $\frac{1}{2}$?

   _____

2. Is $\frac{2}{3}$ less than or greater than $\frac{1}{2}$?

   _____

3. Ten pieces of $\frac{1}{10}$ make a complete whole. Is this statement true?

   _____

4. Three pieces of $\frac{1}{6}$ are equal to two pieces of $\frac{1}{8}$. Is this true?

   _____

5. How many pieces of $\frac{1}{8}$ make $\frac{1}{4}$?

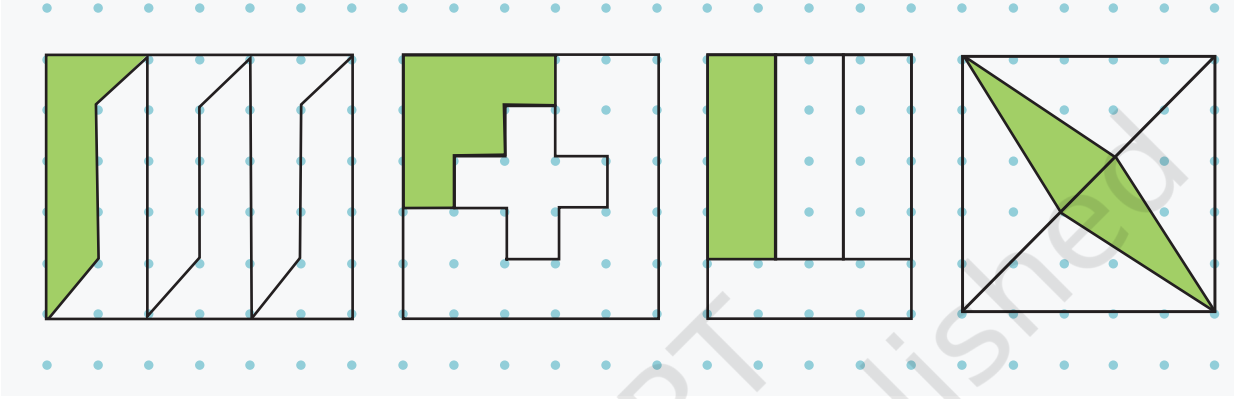
   _____

1									
$\frac{1}{2}$	$\frac{1}{2}$								
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$							
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$						
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$					
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$				
$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$	$\frac{1}{7}$			
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$		
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	
$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

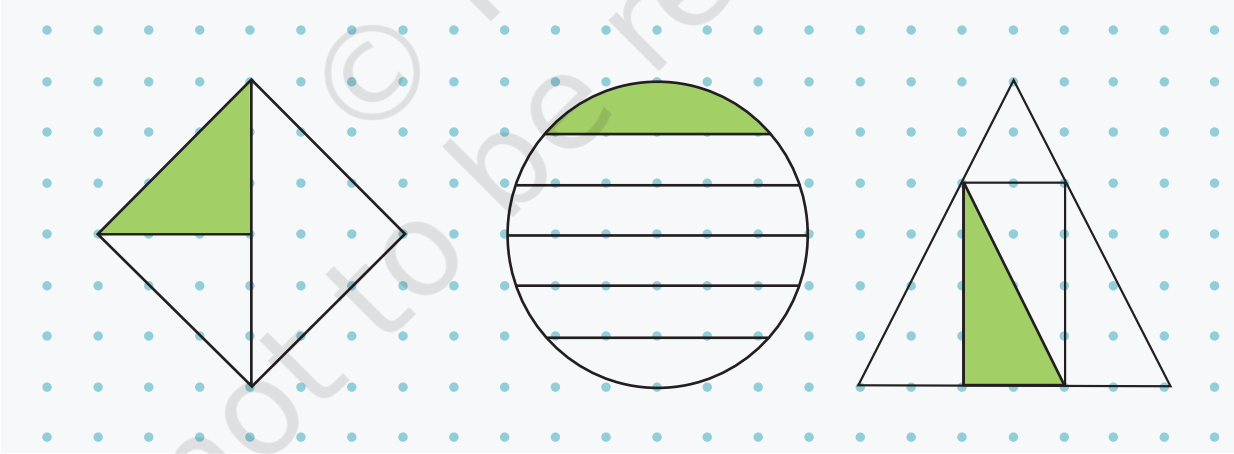
6. Find the pieces that you can put together to make another bigger piece.

Let Us Do

1. Bablu is playing with square shapes. He wants to cut them in such a way that each piece is equal in size. Circle the squares which have been cut into equal parts. Write the fraction for the shaded part, whenever possible.



2. Check if the children's claim below about the shaded parts of each of the pictures is correct. Circle the ones which you think are correct, cross out the ones which are not correct. You can draw additional lines to make the parts equal. Discuss your thinking.



Ameena says: $\frac{1}{3}$

Kishore says: $\frac{1}{4}$

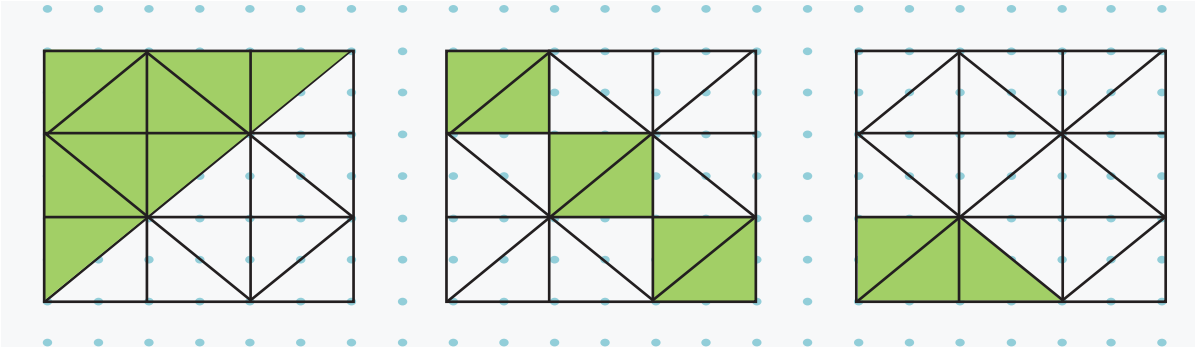
Perry says: $\frac{1}{6}$

Kunj says: $\frac{1}{3}$

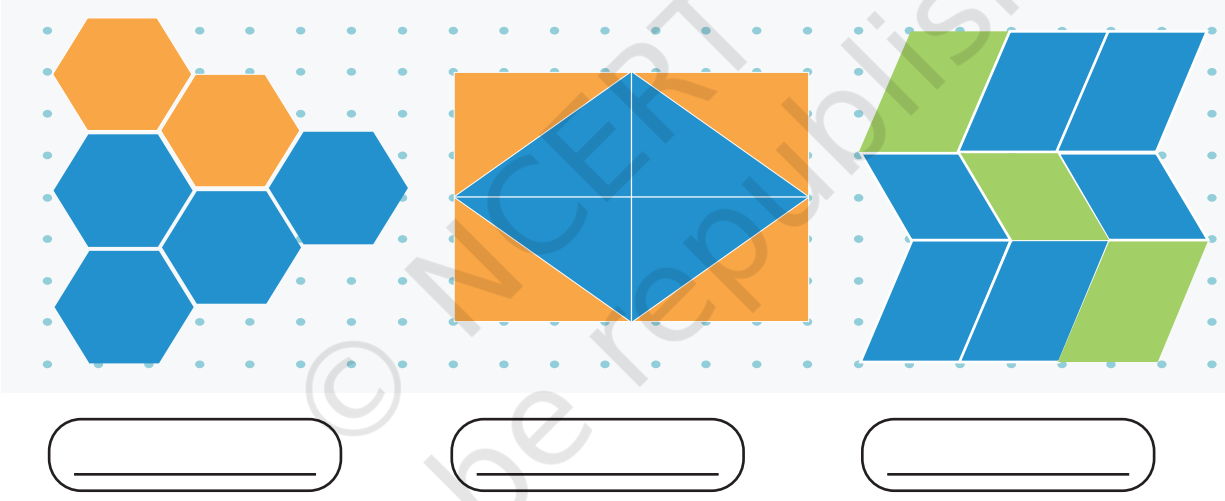
Balu says: $\frac{1}{5}$

Gita says: $\frac{1}{4}$

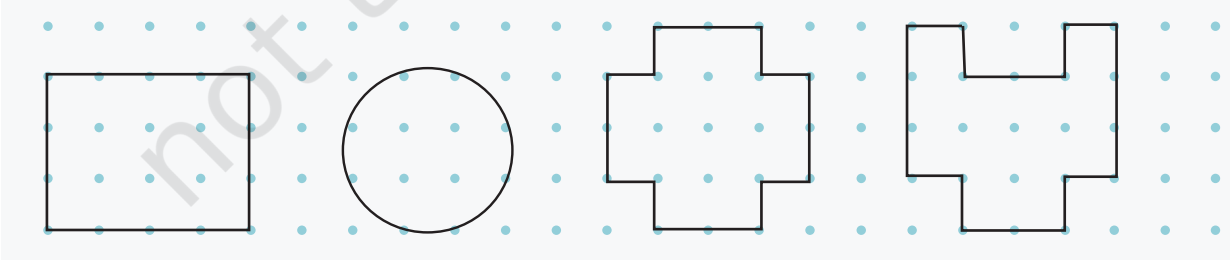
3. Identify the fractions represented by the coloured parts in the given pictures.



4. Identify the fraction of the whole that the blue parts make in each of the pictures given below.



5. Divide the following into equal parts and shade the appropriate parts in each.



Shade $\frac{2}{3}$

Shade $\frac{4}{6}$

Shade $\frac{1}{4}$

Can you also show $\frac{1}{8}$?

Shade $\frac{3}{4}$