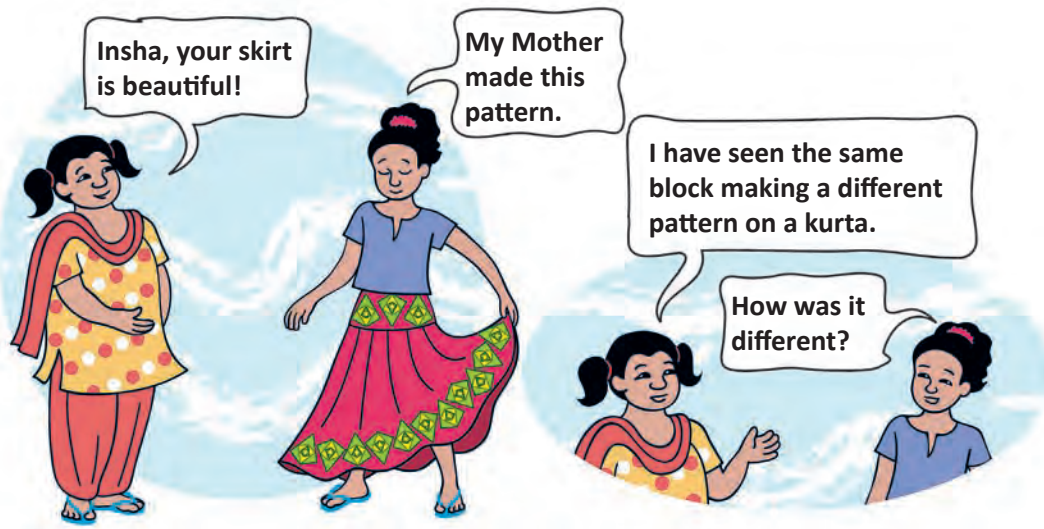# Can You See The Pattern?

Chapter 6

Now you use these two rules to make patterns with this block, Also make your own rule.

Turns and Patterns

Look at this block . We make three different rules to turn it clockwise and see the patterns.

Rule 1: Repeat it with a one- fourth turn.
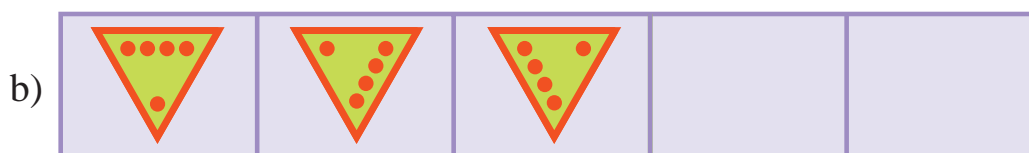
Rule 2: Repeat it with a half turn.

Rule 3: Repeat it with a three- fourth turn.

Practice Time

1. What should come next?

a)

N	Z	N		

b)

c)

2. See this pattern

a)
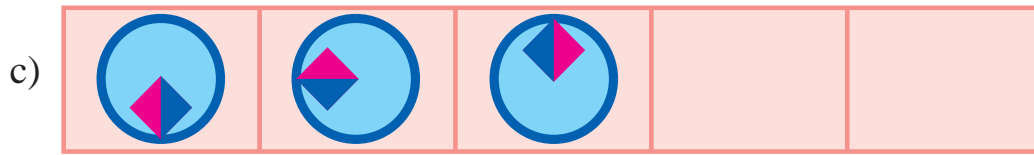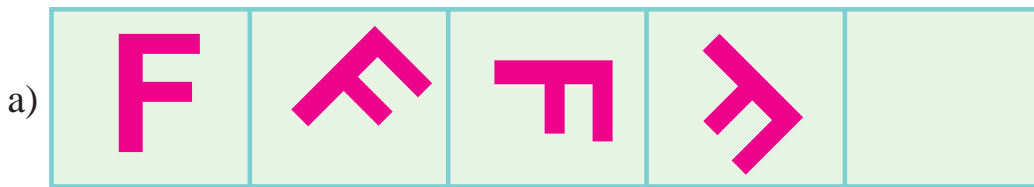
The **rule** of the pattern is – turning by 45° each time. Which will be the next?

Tick (✓) the right one.

 ( )   ( )   ( )

( )

Using the same rule take it forward till you get back to what you started with.

b)

c)

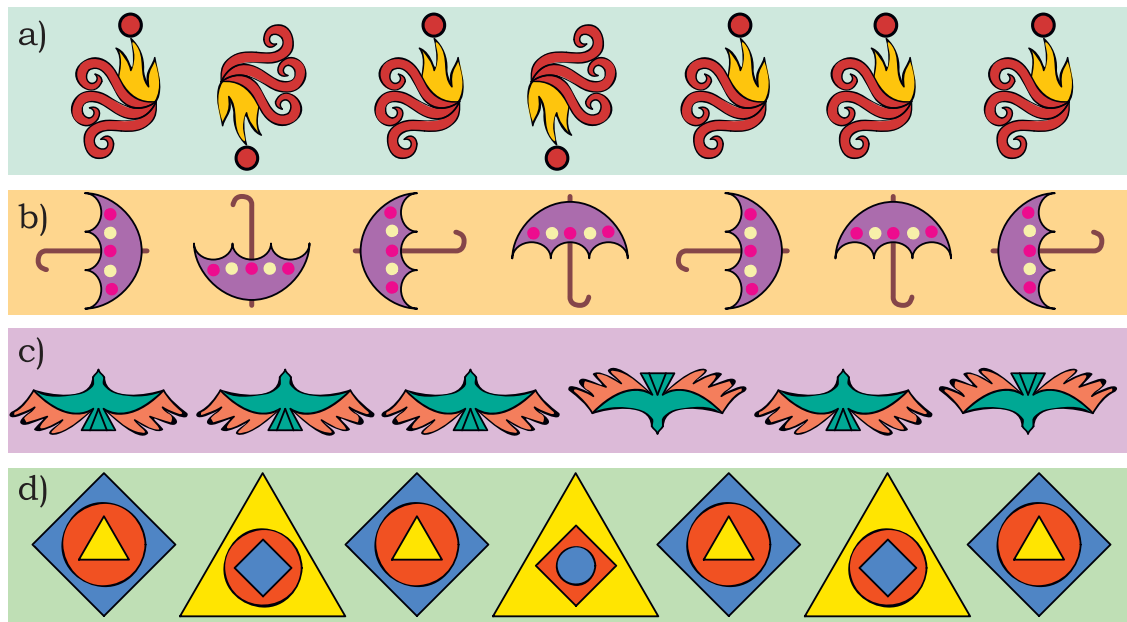3. Some patterns are given below on the left side of the red line. For each pattern, write the rule. Then choose what comes next from the right side of the line and tick (✓) it.

a)

Rule: _____

_____

( )   ( )

b)

Rule: _____

_____

( )   ( )

c)

Rule: _____

_____

( )   ( )

Look For a Pattern

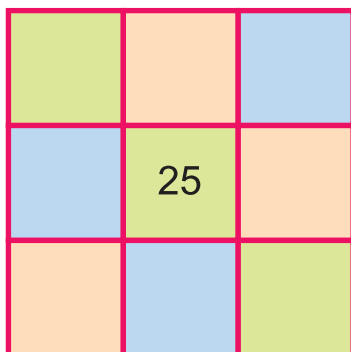Mark that picture which is breaking the rule. Also correct it.

a)

b)

c)

d)

Magic Squares

Do you remember magic triangles? Come now, let's make some magic squares.

❖ Fill this square using all the numbers from 46 to 54.

Rule: The total of each line is 150

❖ Fill this square using all the numbers from 21 to 29.

Rule: The total of each side is 75.

Magic Hexagons

Look at the pattern of numbers in the Hexagons.

Each side has 2 circles and 1 box.

You get the number in each box by multiplying the numbers in the circles next to it.
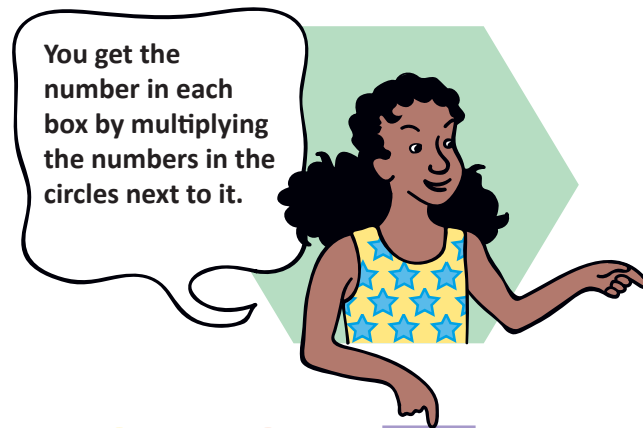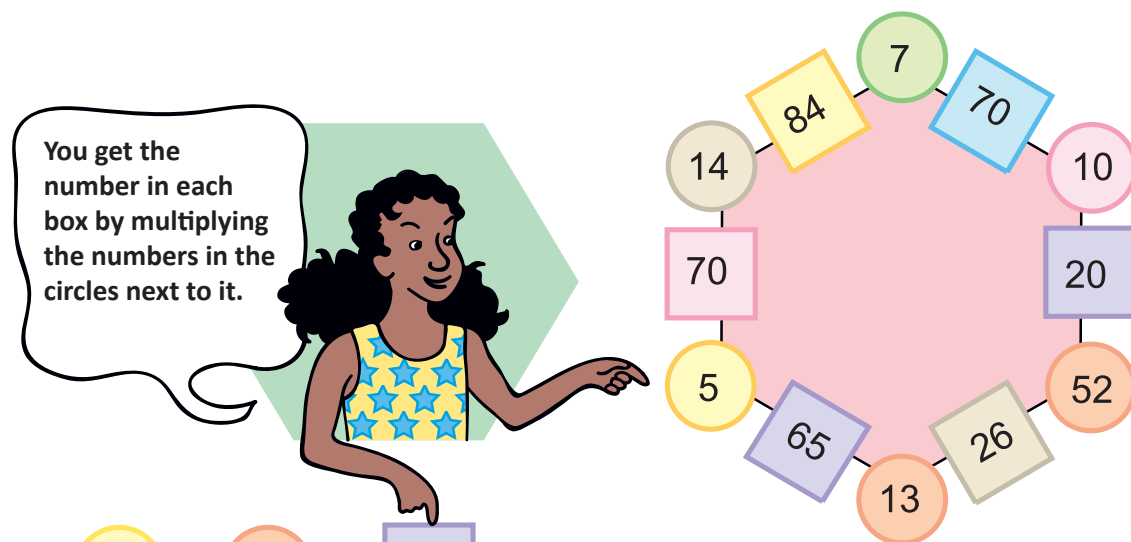
$5 \times 13 = 65$

$\bigcirc \times \bigcirc = 70$

Look at the number 65 in the box.

Which are the circles next to it?

Can you see how the rule works?

❖ Use the same rule to fill the hexagons below.

a)

b)
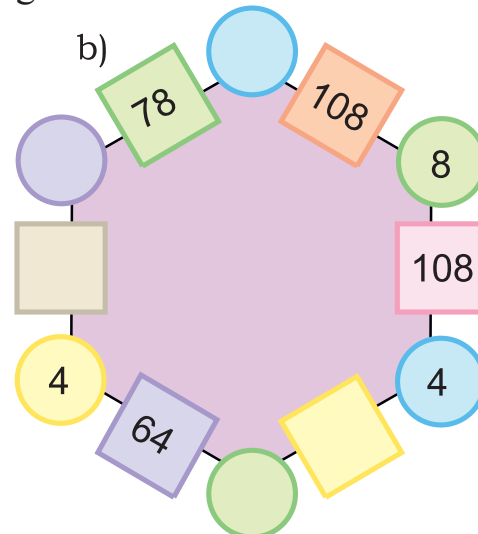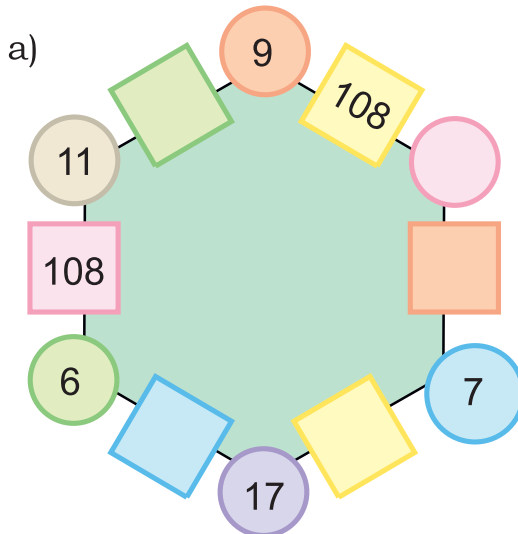
Now you also make your own hexagon.

Numbers and Numbers

$$24 + 19 + 37 = 37 + 24 + 19$$

$$215 + 120 + 600 = 600 + 120 + 215$$

❖ Are they equal?

❖ Fill in the blank spaces in the same way.

a) $14 + \boxed{} + \boxed{} = 34 + 14 + 20$

b) $\boxed{} + 42 + \boxed{} = 65 + \boxed{} + 80$

c) $200 + 300 + \boxed{} = \boxed{} + 400 + \boxed{}$

❖ Now, look at this_____ $48 \times 13 = 13 \times 48$

Check if it is true or not.

Left Right – Same to Same

Come, let's see how to get such numbers.

Take a number, say   43

Now turn it back to front   34

Then add them together   77

77 is one such special number.

There are many such numbers.

You have reversed the number by writing it back to front.

Take another number   48

Now turn it back to front   84

Then add them together   132

Is this a special number?   No!   Why not?

OK, carry on with the number   132

Again turn it front to back   231

Then add the two together   363

Ah! 363 is a special number.

So we see that to get a special numbers we sometimes need more steps.

❖ Now try and change these numbers into special numbers –

a) 28   b) 132   c) 273

Now let's use words in a special way,

N O   L E M O N S   N O   M E L O N

S T E P   N O T   O N   P E T S

Did you notice that it reads the same from both sides – right to left and left to right?

Now try and use words in a special way.

Calendar Magic

Look at the calendar below.

Let us mark 3×3 [9 dates] on the calendar and see some magic.

s	m	t	w	th	f	s
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	20
22	23	24	25	26	27	28
29	30	31				

I can quickly find the total of these numbers in the box.

Won't that take some time?

The total is 99.

Take the smallest number	3
Add 8 to it	+8
=	11
Multiply it by 9	×9
Total	99

Now you choose any 3×3 box from a calendar and find the total in the same way. Play this game with your family.

Hey! Just take the middle number and multiply it by 9. See you can get the answer even faster.

Some More Number Patterns

❖ Take any number. Now multiply it by 2, 3, 4…………… at every step. Also add 3 to it at each step. Look at the difference in the answer. Is it the same at every step?

12	×	2	+	3	=	27
12	×	3	+	3	=	39
12	×	4	+	3	=	51
12	×	5	+	3	=	63
12	×		+	3	=	
	×	7	+	3	=	
	×		+	3	=	
	×		+		=	

Now try doing it with some other number and also take a different number to add at each step.

❖ Look at the numbers below. Look for the pattern. Can you take it forward?

$$(9 - 1) \div 8 = 1$$
$$(98 - 2) \div 8 = 12$$
$$(987 - 3) \div 8 = 123$$
$$(9876 - 4) \div 8 = \underline{}$$
$$(98765 - 5) \div 8 = \underline{}$$
$$(\underline{} - \underline{}) \div 8 = \underline{}$$
$$(\underline{} - \underline{}) \div 8 = \underline{}$$

Smart Adding

What if someone gives you to add ten numbers together?

Oh! I can find it quickly.

Smart! How can you do that?

I can get the sum without adding.

$$1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 55$$
$$11 + 12 + \; + \; + \; + \; + \; + \; + 20 = 155$$
$$21 + \; + \; + \; + \; + \; + \; + 30 =$$
$$31 + \; + \; + \; + \; + \; + \; + 40 =$$
$$41 + \; + \; + \; + \; + \; + \; + 50 =$$
$$51 + \; + \; + \; + \; + \; + \; + 60 = 555$$
$$61 + \; + \; + \; + \; + \; + \; + 70 =$$

❖ Did you notice some patterns in the answers?

Fun with Odd Numbers

Take the first two numbers. Now add them, see what you get.

Now, at every step, add the next odd number.

$$1 + 3 = 4 = 2 \times 2$$
$$1 + 3 + 5 = 9 = 3 \times 3$$
$$1 + 3 + 5 + 7 = 16 = 4 \times 4$$
$$1 + 3 + 5 + 7 + 9 = = \times $$
$$1 + 3 + 5 + 7 + 9 + 11 = = \times $$
$$1 + 3 + 5 + 7 + 9 + 11 + 13 = = \times $$
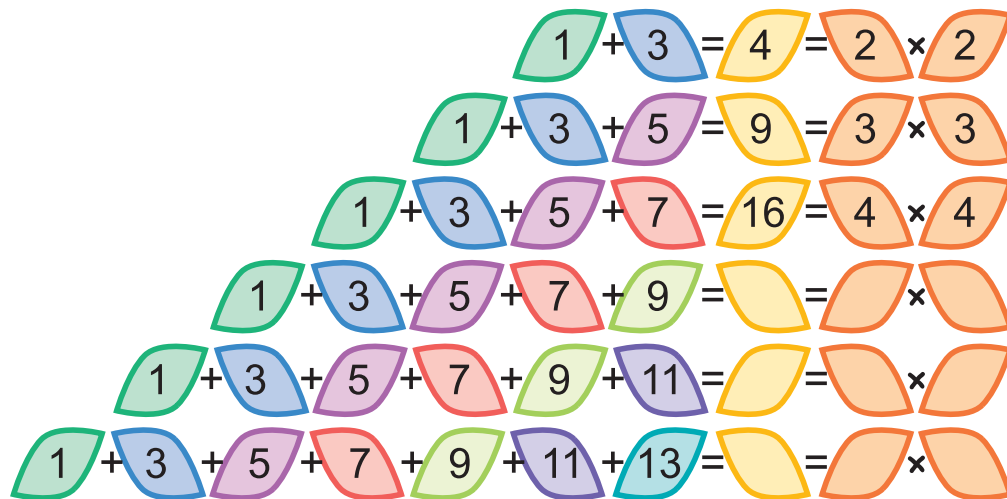
How far can you go on?

Secret Numbers

Jaffar and Asiya were playing a guessing game by writing clues about a secret number. Each tried to guess the other's secret number from the clues.

Can you guess their secret numbers?

❁ It is larger than half of 100

❁ It is more than 6 tens and less than 7 tens

❁ The tens digit is one more than the ones digit

❁ Together the digits have a sum of 11

What is my secret number?
❁ _____
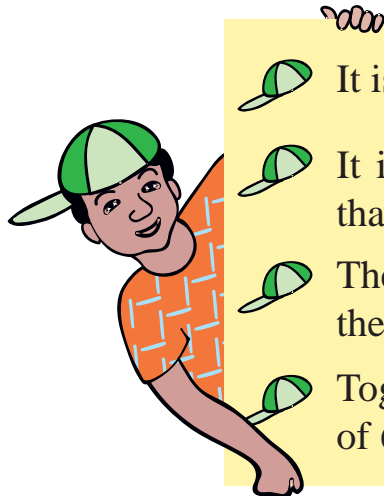
It is smaller than half of 100

It is more than 4 tens and less than 5 tens

The tens digit is two more than the ones digits.

Together the digits have a sum of 6.

❖ Write a set of clues for a secret number of your own. Then give it to a friend to guess your secret number.

Number Surprises

a. Ask your friend - Write down your age. Add 5 to it. Multiply the sum by 2 . Subtract 10 from it. Next divide it by 2. What do you get?

Is your friend surprised?

b.

☆ Take a number

☆ Double it   ☐ × ☐ 2 ☐ = ☐

☆ Multiply by 5   ☐ × ☐ 5 ☐ = ☐

☆ Divide your answer by 10   ☐ ÷ ☐ 10 ☐ = ☐

c)   Look at the pattern of numbers and take it forward.

$$1 = 1 \times 1$$
$$121 = 11 \times 11$$
$$12321 = 111 \times 111$$
$$1234321 = ?$$

d) ☆ Take a number ▭

☆ Double it ▭ $\times$ [2] = ▭

☆ Again double it ▭ $\times$ [2] = ▭

☆ Add the number you took first to the number. = ▭ $\times$ ▭ = ▭

☆ Now again double it. ▭ $\times$ [2] = ▭

☆ Divide by 10 ▭ $\times$ [10] = ▭

❖ Now make your own number surprises.

Now Let Us Do These

Q.NO. 1 Fill the 3×3 square using all the number from 1 to 9 so that total of each row, column and diagonal is 15.

	5	

Q.NO. 2 Write the next number in the pattern:

   a. 1, 2, 4, 8, 16, _____

   b. 1, 2, 3, 4, 9, 16, _____

   c. └, ┘, ┐, ┌ , _____

   d. 1, 2, 2, 4, 8, 32, _____

Q.NO. 3 Complete the pattern:

$$1 = 1 = 1 \times 1$$

$$1 + 2 + 1 = 4 = 2 \times 2$$

$$1 + 2 + 3 + 2 + 1 = 9 = 3 \times 3$$

$$\_\_\_ + \_\_\_ + \_\_\_ + 4 + \_\_\_ + \_\_\_ + \_\_\_ = 16 = 4 \times 4$$

$$1 + 2 + 3 + 4 + 5 + 4 + 3 + 2 + 1 = \_\_\_ = \_\_\_ \times \_\_\_$$

$$\_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ + \_\_ = 36 = \_\_ \times \_\_$$

Q.NO. 4 Fill in the blanks:

a) $4 + 7 + 9 = 7 +$ ___ $+ 9$

b) $17 + 24 + 36 = 36 + 24 +$ ___

c) $9 + 11 + 21 =$ ___ $+$ ___ $+ 9$

d) $45 \times 35 = 35 \times$ ___

e) $45 + 35 =$ ___ $+ 45$

Q.NO. 5 Fill in the blanks:

$0 \times 1 \times 2 + 1 = 1 = 1 \times 1 \times 1$

$1 \times 2 \times 3 + 2 = 8 = 2 \times 2 \times 2$

$2 \times 3 \times 4 + 3 = 27 = 3 \times 3 \times 3$

$3 \times 4 \times 5 + 4 = 64 = 4 \times 4 \times 4$

$4 \times 5 \times 6 + 5 = 125 =$ __ $\times$ __ $\times$ __

__ $\times$ __ $\times$ __ $+ 6 = 216 = 6 \times 6 \times 6$

__ $\times$ __ $\times$ __ $+$ __ $= 343 =$ __ $\times$ __ $\times$ __

Answers

Q.NO.1

6	7	2
1	5	9
8	3	4

Q.NO. 2 (a) 32 (b) 27 (c) $\llcorner$ (d) 256 (Product of previous 2 terms)

Q.NO.3 $1 + 2 + 3 + 4 + 3 + 2 + 1 = 16 = 4 \times 4$

$1 + 2 + 3 + 4 + 5 + 4 + 3 + 2 + 1 = 25 = 5 \times 5$

$1 + 2 + 3 + 4 + 5 + 6 + 5 + 4 + 3 + 2 + 1 = 36 = 6 \times 6$

Q.NO.4   (a) $4 + 7 + 9 = 7 + 4 + 9$

(b) $17 + 24 + 36 = 36 + 24 + 17$

(c) $9 + 11 + 21 = 21 + 11 + 9$

(d) $45 \times 35 = 35 \times 45$

(e) $45 + 35 = 35 + 45$

Q.NO.5 $4 \times 5 \times 6 + 5 = 125 = 5 \times 5 \times 5$

$5 \times 6 \times 7 + 6 = 216 = 6 \times 6 \times 6$

$6 \times 7 \times 8 + 7 = 343 = 7 \times 7 \times 7$

Boxes and Sketches

Chapter 7

Sweet Box

Ulfat went to buy sweets. The shopkeeper took a paper cut-out and quickly made a lovely pink for the sweets!

❖ Look at the photo ad make your own box. Use the cut –out on page. How fast can you fold it?

After coming home Ulfat unfolded the box. She removed the extra flaps so the cut –out looked like this.
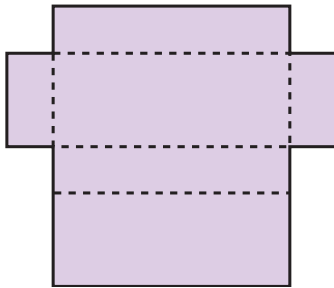
This shape makes a box. Let me see what other shapes will make a box.

❖ She made four shapes. Each is to be folded along the dotted lines. You have to find out which of these can be made into a box.

a)

b)

c)

d)
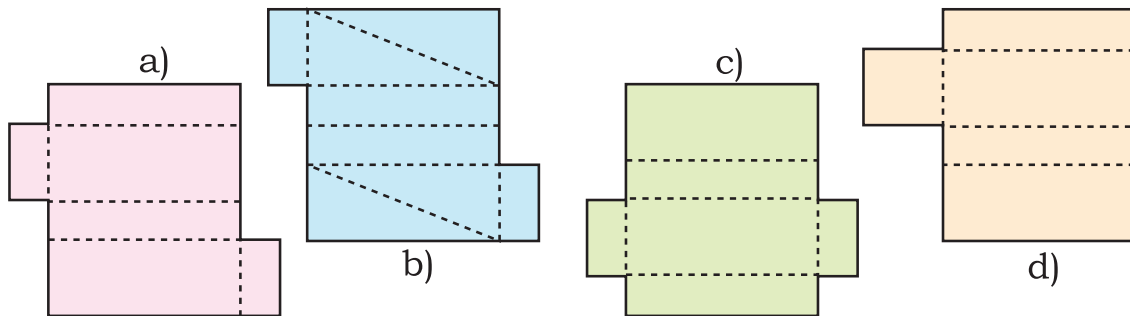
Shapes that Fold into a Cube

a. Javaid wants to make a paper cube using a squared sheet. He knows that all the faces of a cube are squares.

He draws two different shapes.

How many faces does the cube have? _____
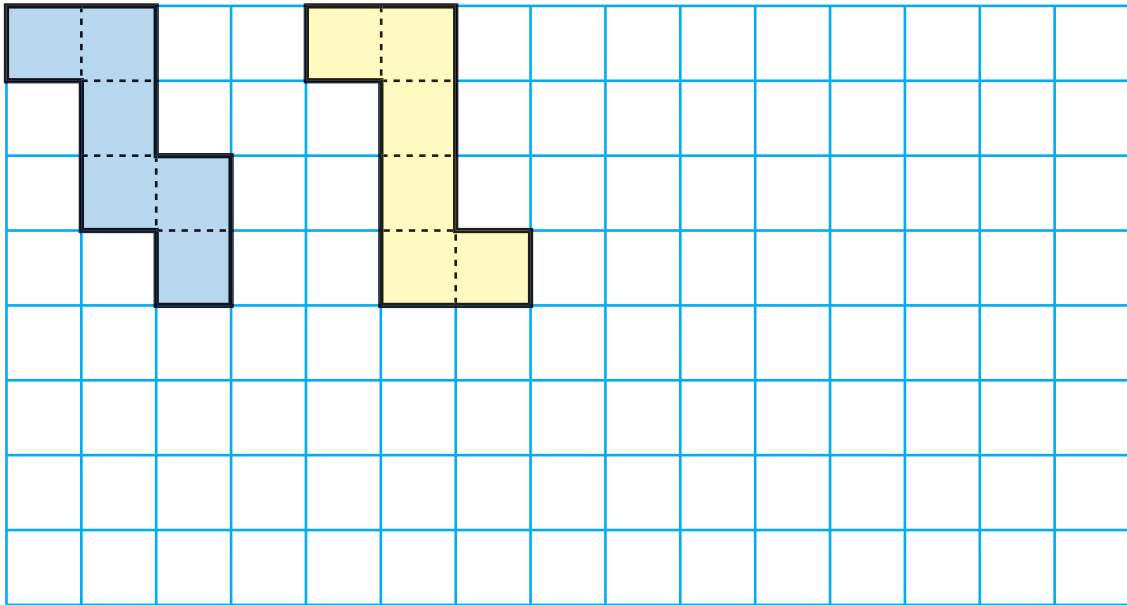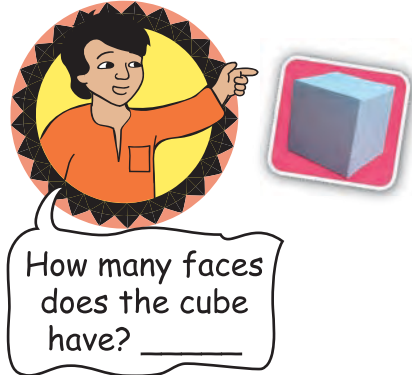
❖ Will both these shapes fold into a cube?

❖ Draw at least one more shape which can fold into a cube.

❖ What will be the area of each face of the cube?

❖ Draw one shape which will not fold into a cube.

❖ Look around and discuss which things around you look like a cube. List a few.

Shapes for an Open Box

Remember the puzzles with five squares in chapter 2? You saw 12 different shapes made with five squares. (Page 33)

If you cut those shapes and fold them, some of those fold into an open box (box without a top)
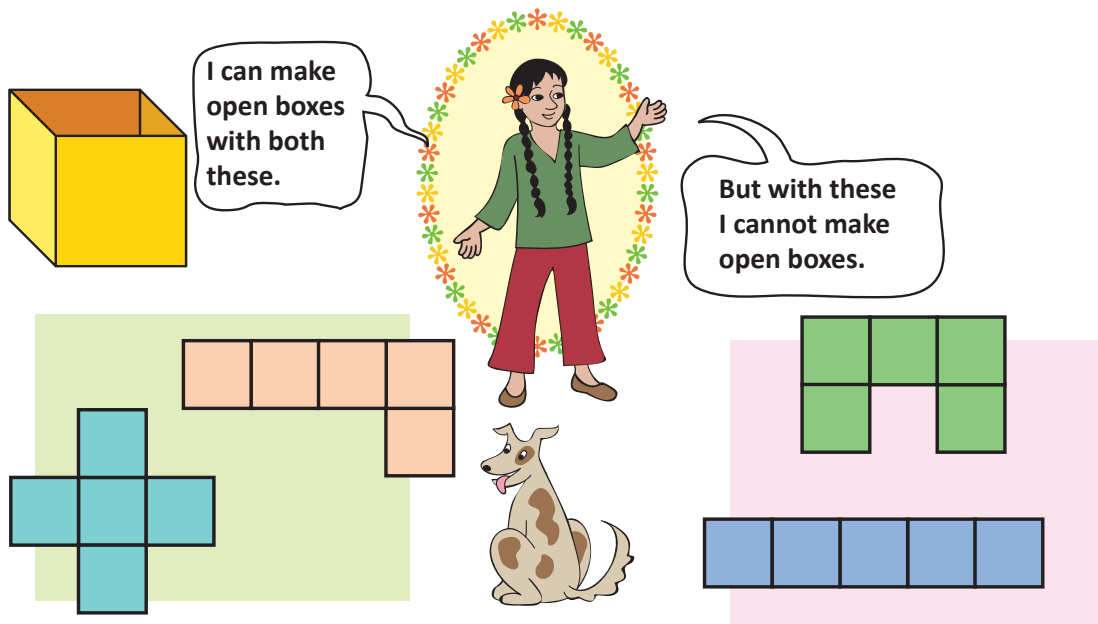
- ❖ Find out which off the other 8 shapes (on page 33) can be folded to make an open box.

- ❖ Draw more shapes which will not fold to make an open box.

Boxes and Shapes

All boxes are not cubes. Here are some different kinds of boxes. Match each shape below with a box into which it will fold.
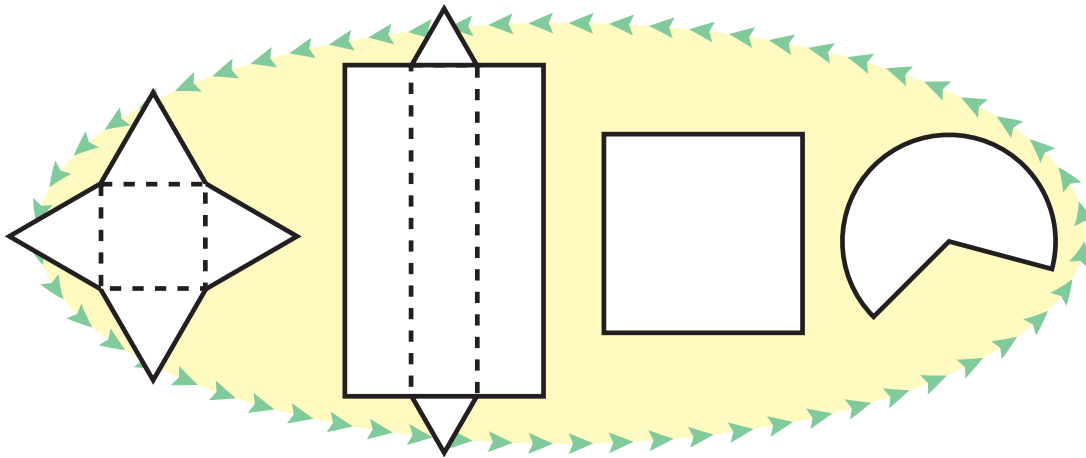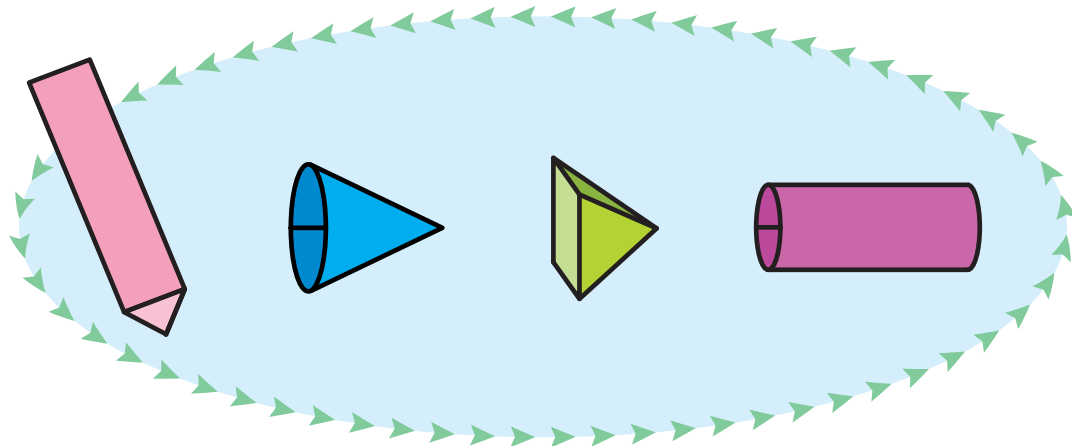
Floor Maps

For making a house a floor map is first made. Have you ever seen a floor map? Here is a floor map of Ahmad's house. It shows where the windows and the doors are in the house.
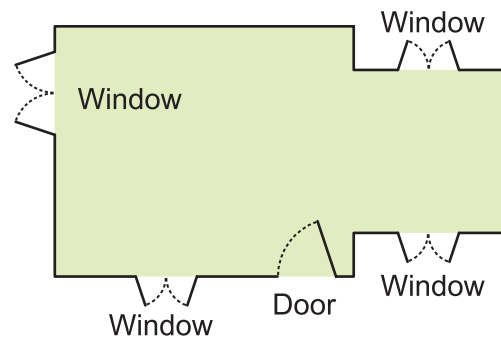
❖ Which is the front side of her house? How many windows are there on the front side?

From the floor map we cannot make out what her house really looks like or how high the windows are. So we look for a special way of drawing the house which is deep – to show the length, width and height.

a)

Here are four **deep drawings** of houses.

❖ Which one is Ahmad's house?

b)

d)   c)
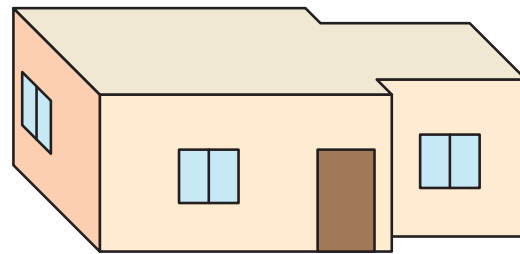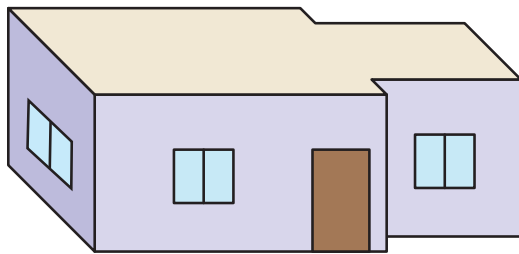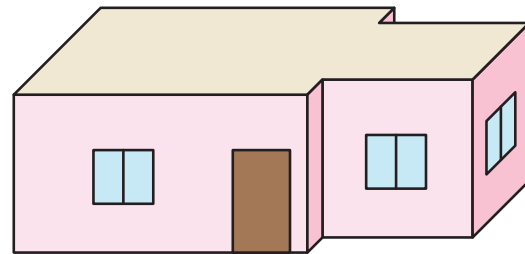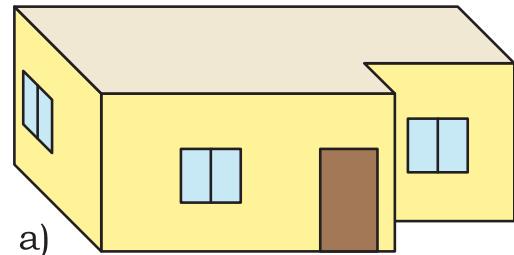
❖ Why do the other three deep drawings not match the floor map? Discuss.

Practice Time

1. Look at this map of a house. Make doors and windows on the deep drawings of this house.

Window   Window

Door
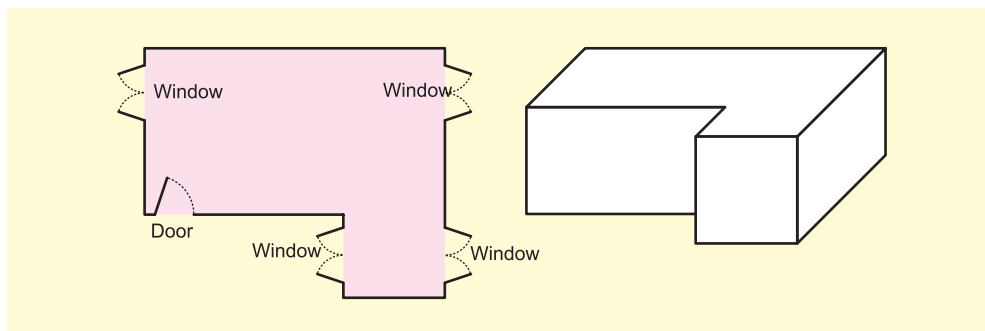
Window   Window

❖ Are there any windows you couldn't show on the deep drawings? Circle them on the floor map.

2. Try to make a floor map of your own house.

A Deep Drawing of a Cube

Altaf and his friends made deep drawings of a cube.

These are their drawings.
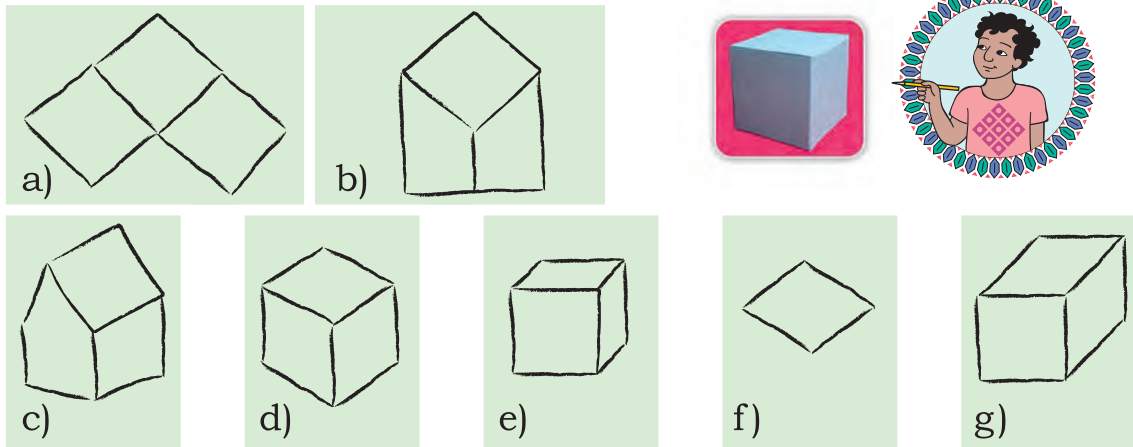
❖ Which of the drawings look correct to you? Discuss.

❖ Can you add some lines to make drawing f) in to a deep drawing of the cube?

Puzzle

This cut – out is folded to make a cube.
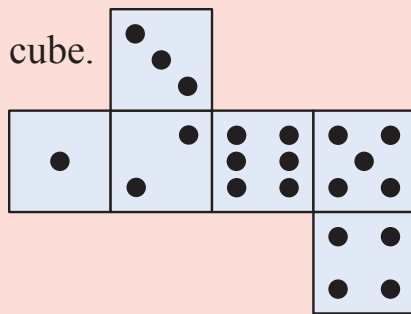
Which of these are the correct deep drawings of that cube?
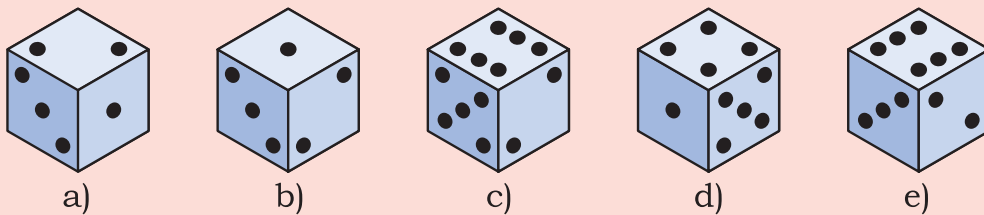
A Simple Way to Draw a Cube

Asifa wants to make a deep drawing of this cube.

She draws the cube like this.

> I drew two squares like this to show the front face and the back face.

> I joined the corners of the squares like this to make the deep drawing of the box.
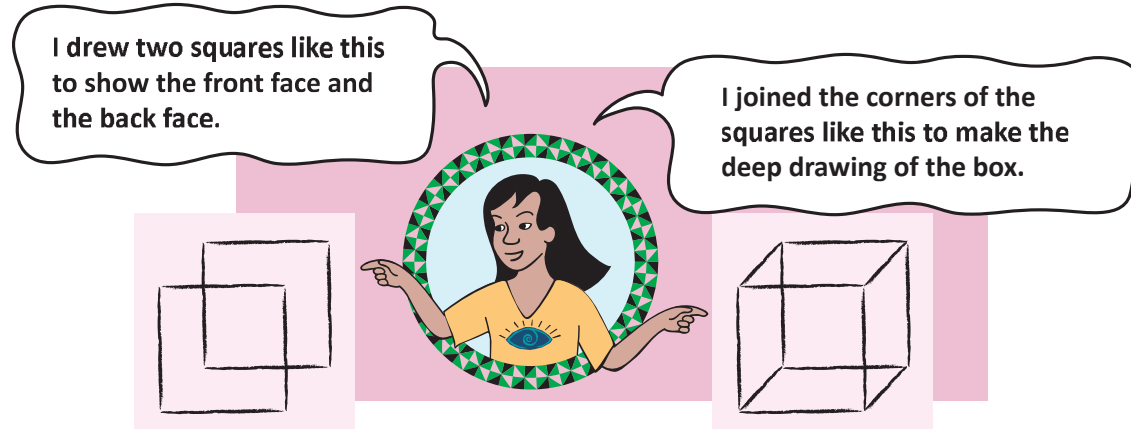
❖ In the same way make a deep drawing of a box which looks like this.

Matchbox Play

Irfan, Zubair and Sheeba make this bridge using matchboxes.

Irfan and Sheeba made drawings of the bridge.

The bridge looks like this to me from where I am standing.

The bridge looks like this to me. My drawing shows how high our bridge is and how wide it is.

From your drawing I can make out how long and high the bridge is. But I cannot make out how wide it is.

❖ If you look at the bridge from the top, how will it look? Choose the right drawing below:

a)

b)

❖ Look at the photo and try to make a deep drawing of this bridge.

Practice Time

1. Make drawings to show how the bridge will look

   ❖ From the top
   ❖ From the front
   ❖ From the side

2. Make a matchbox model which looks like this.

   From the top

   From the front

   From the side
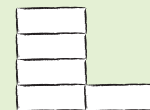
   ❖ Also make a deep drawing of the model in your notebook.

3. How many cubes are needed to make this interesting model?

   ❖ Here are some drawings of the model. Mark the correct top view drawing with 'T' and the correct side view drawing with 'S'.

   a)   b)   c)   d)
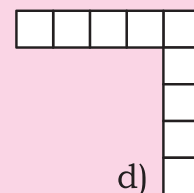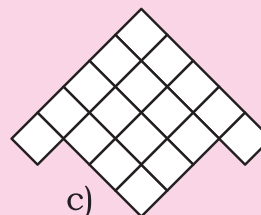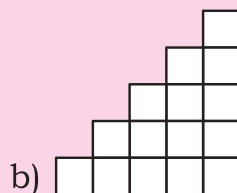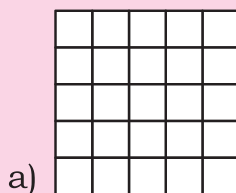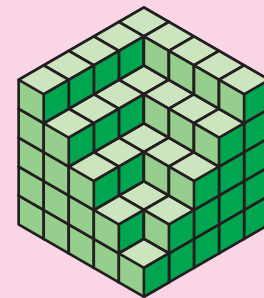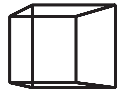
Now Let us Do These

Q.NO 4 Make a paper cube and answers the following questions

    a. How many faces a cube has?

    b. How man faces of a cube are squares?

    c. How many corners does a cube have?

    d. How many edges does a cube have?

Q.NO 5 Give three examples of a cube in our daily life.

Q.NO.6 Boxes have different names. So fill in the blanks the suitable name.

    a. An ice-cream _____

    b. A gas _____

    c. A _____ sweet box.

    d. A _____ of Egypt.

Answers

Q. NO. 4   (a) 6 (b) 6 (c) 8 (d) 12

Q.NO. 5   Dice, Chalk box, Sweet box etc

Q.NO.6   (a) Cone   (b) Cylinder

               (c) Cubical (d) Pyramid

Tenths and Hundredths

What was the length of the smallest pencil you have used?

How long is the pencil? Guess _____ cm

Measure it using a scale .how good is your guess?

We can see that Sahil used a lens to make it look bigger.

It is more than 3 centimetres.

Here one centimetre has 10 equal parts. So each part is one-tenth of a centimetre. One-tenth of a centimetre is called one millimetre (mm).

Oh, so this pencil is 3 centimetres and 6 millimetres long.

See I am 3 mm long!

But I am longer! Seven-tenth of a centimetre or ____ millilitres.
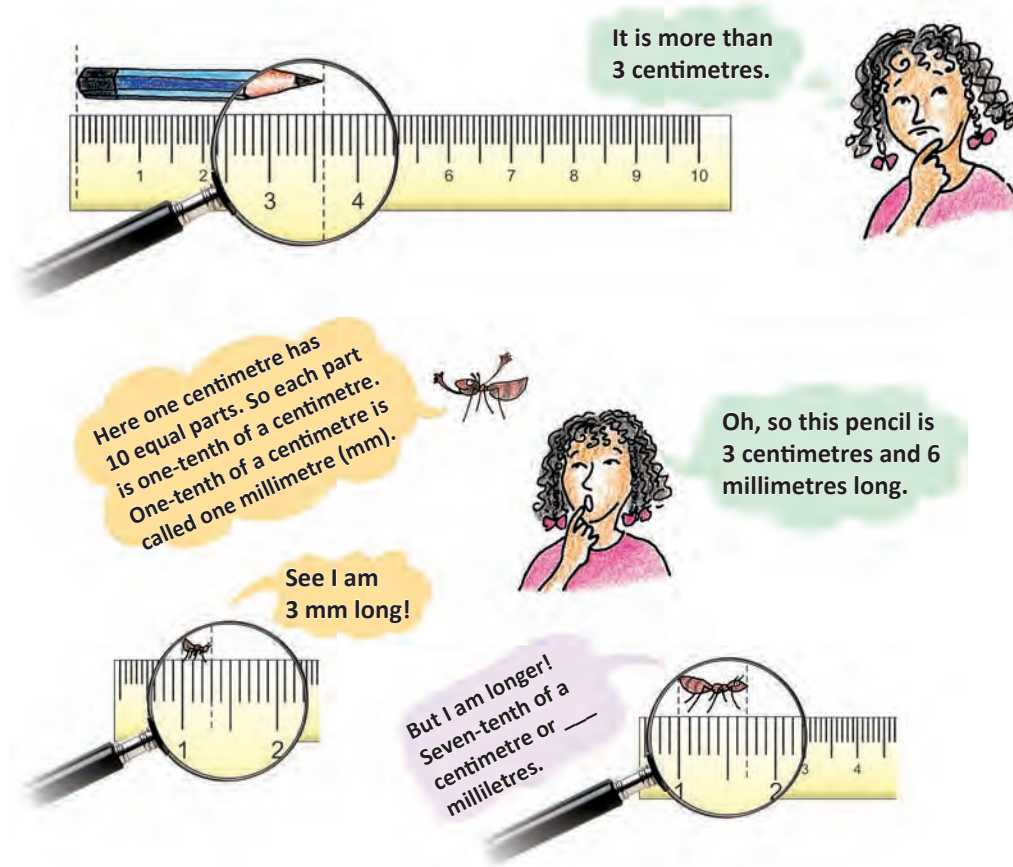
We also call one – tenth of a centimeter as 0.1 centimetre. We read it as 'zero point one centimetre '.

So one **millimetre** is the same as 0.1 cm.

❖ What is the length of this pencil? _____ mm.

What is its length in centimetres?

Frogs

Have you seen frogs? Where? How many different types of frogs have you seen? Are all the frogs of the same length? Here are two interesting examples.

Gold Frogs

This kind of frog is among smallest in the world. Its length as only 0.9 cm!

Guess how many such frogs can sit on your little finger!
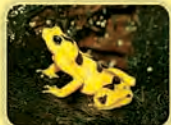
Bull Frog

But this is among the frogs, It is as long as 30.5 cm!

What does 0.9 cm mean? It is the same as _____ millimetres. We can also say this is nine – tenths of a cm. Right?

So 30.5 cm is the same as _____ cm and millimetre.

About how many of the big frogs will fit on the 1 cm scale?

If they sit in a straight line about how many of the small frogs will cover 1 cm?
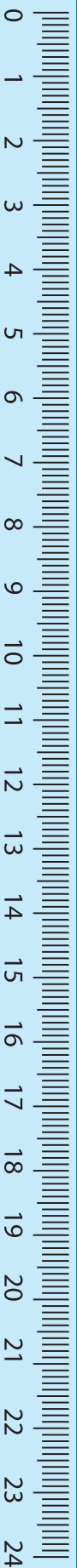
Practice Time

Length of the nail _____ 2 cm and _____mm
or 2.____cm
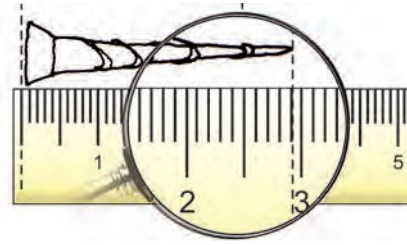
2)
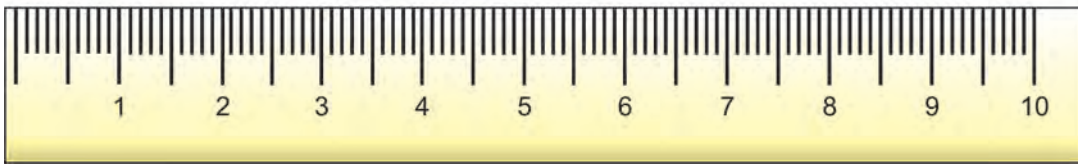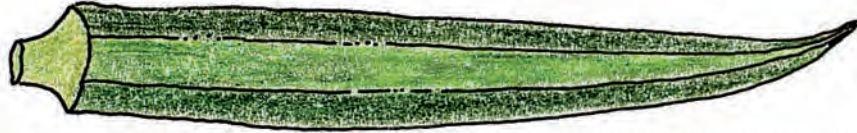
The length of this lady's finger (*bhindi*) is _____ cm and _____mm.

We can also write it as _____ cm.

   3) Using the scale on this page find the difference in length between candle 1 and candle 3.
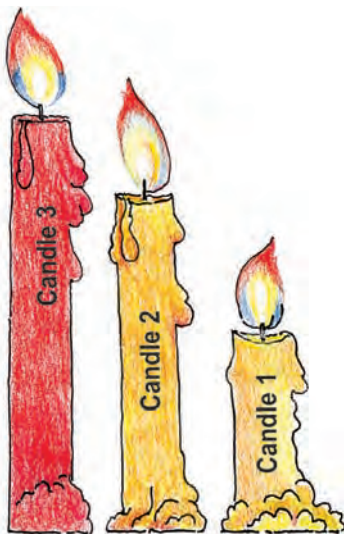
Length of	Length in cm and mm	Length in cm
Candle 1		
Flame 1		
Candle 2		
Flame 2		
Candle 3		
Flame 3		

Guess and Colour

First colour the rods as shown, without measuring! Then check.

Rods of length less than 1 cm	**Red**
Rods of length between 1 cm and 2 cm	**Blue**
Rods of length between 2 cm and 3 cm	**Green**
Rods of length between 3 cm and 4 cm	**Orange**
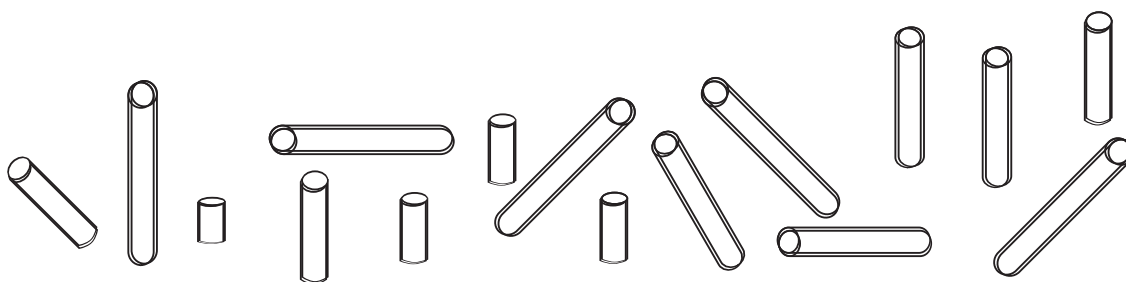
Guess, Draw and Measure

Guess the lengths to draw these things. Ask your friend to draw the same. After you make the drawing use a scale to measure the length. Whose drawing showed a better guess?

Guess its length and draw	Measure of your drawing	Measure of your friend's drawing
An ant of length less than 1 cm		
Pencil of length about 7 cm		
A glass 11 cm high with water up to 5 cm		
A bangle of perimeter 20 cm		
A curly hair of length 16 cm		
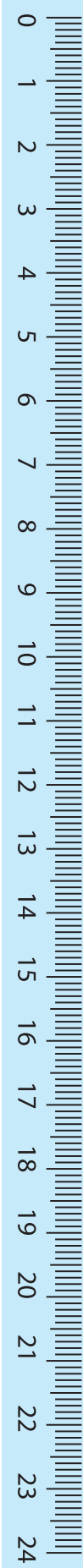
Our Eyes Get Confused?

Which line is longer? A or B? Measure each line and write how long it is in centimetres. How good is your guess?

A

B

C

Which line is longer? C or D? Measure each line.

How good is your guess?

D

The Longest Rupee Notes?

What is the length of a 100 rupee note? Guess. Now measure it by using a scale.

Now guess the length and width of many other things. Measure and find the difference between your measure and your guess.

Size of	Your Guess in cm		Your measure in cm	
	Length	Width	Length	Width
100 Rupee note				
10 Rupee note				
20 Rupee note				
5 Rupee note				
Post Card				
Merry Math Book				

At the Market

Rs 2.50 for one egg

Rs 120.50

Rs 6.50

Rs 567.25

Rs 8.75

Rs 0.50

Rs 32.99

Look at this funny price! 32 rupees and 99 paise! But if we give 33 rupees they don't give us back one paisa!

What part of a rupee is 1 paisa?

This is only to fool us by showing 1 paisa less!

One paisa is one hundredth of a rupee, isn't it? It is written as Rupee 0.01. So that is why we write 99 paise as Rupee 0.99

1. How many does a matchbox cost? _____

2. How many matchboxes can be got for Rs. 2.50? _____

3. How many rupees soap cost? _____

4. Aslam wanted to buy a soap. He has a five rupee coin, 2 one-rupee coins and 4 half-rupee coins. Write in rupees want money will he get back.

5. a) An egg costs two and half- rupees. How much will one and a half dozen cost?

   b) How many pens can Mannan buy? How much money is left?

Mannan, take rupees 60 and buy one and half dozen eggs. You can buy pens with the money left.

6. The price of two pens is Rs ____. Can she buy two pens?

Can I buy two pens with rupees 13?

Practice time – Match these

Match each yellow box with one green and one pink box.

Rupee $\frac{1}{2}$	5 paise	Rupee 0.75
Rupee $\frac{1}{10}$	25 paise	Rupee 0.50
Rupee $\frac{5}{100}$	99 paise	Rupee 0.05
Rupee $\frac{3}{4}$	50 paise	Rupee 0.10
Rupee $\frac{99}{100}$	75 paise	Rupee 0.25
Rupee $\frac{1}{4}$	10 paise	Rupee 0.99

Colourful Design

What part of the sheet is coloured blue? ___/ 10

What part of the sheet is green? _____

Which colour covers 0.2 of the sheet?

Oh, the blue strip is 0.1 of the sheet.
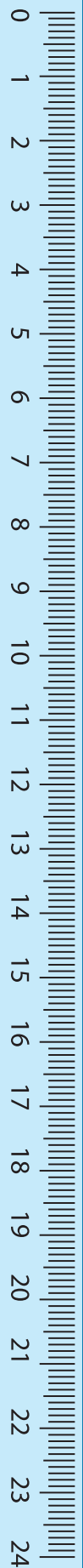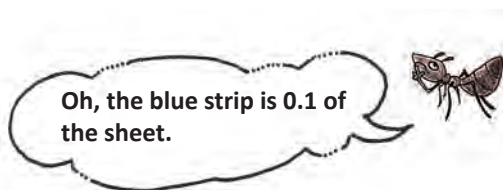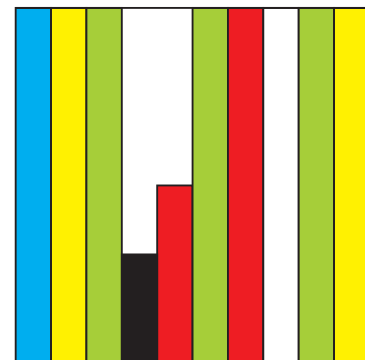
Now look at the second sheet. Each strip is divided into ten equal boxes. How many boxes are there in all?
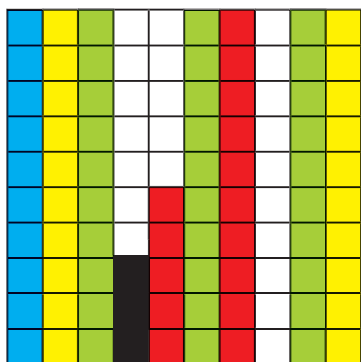
Is each box 1 / 100 part of the sheet?

How many blue boxes are there? _____

Is Blue equal to 10 / 100 of the sheet? We saw that blue is equal to 1 / 10 of the sheet. We wrote it as 0.1 of the sheet.

Can we say 10 / 100 = 1 / 10 = 0.10 =0.1?

Think: Can we write 10 paise as 0.1 of a rupee?

How many boxes are red? What part of this sheet is this? 15 / _____

Can we also write it as 0.15 of the sheet?

[**Hint:** *Remember we wrote 99 paise as 0.99 rupee!*]

Now 3 / 100 of the sheet is black. We can say 0. ___ sheet is black.

How many white boxes are there in the sheet?

What part of the second sheet is white? _____

Don't get confused! 0.10 is the same as 0.1.

Remember, this 50 is rupee 0.50 and also rupee 0.5

❖ Make your designs.
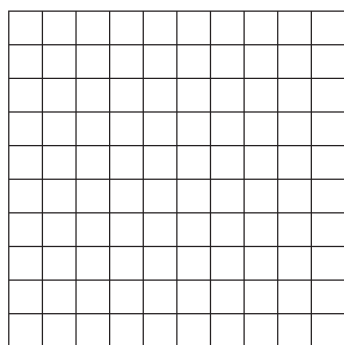
Make a nice design by colouring 0.45 part of this square red
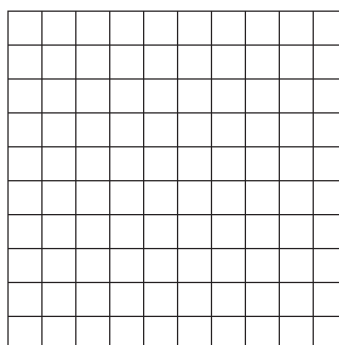
Use four colours. Each colour should cover 0.05 of this square.
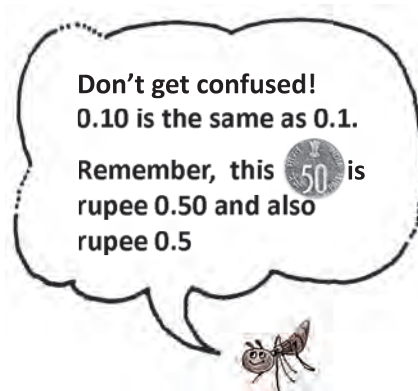
Sports Day

The school at Anantnag has its sports day.

The first five children in long Jump are:

Saika	3.50 m
Ruksana	4.05 m
Areena	4.50 m
Gulshan	3.05 m
Ishrat	3.35 m

Saika jumped 3.50 m which is 3 m and 50 cm

But how far did Gulshan jump? ___ m and ___ cm.

Who is the winner in the long jump? _____

Write the names of the I, II and III winners on this stand.

Do you remember that 1 metre = 100 centimetres?

So one centimetre is 1/100 0f a metre.

We also write 1 cm as _____m.

Write in Metres

3 metre 45 centimetre   metres

99 centimetre   metres

1 metre and 5 centimetre   metres

How Big Can You Get

A

After breathing out 1.52 m

One taking deep breath 1.82 m

Different in size

Do this for yourself and find the difference

B

You have to grow 45 cm to reach 2 m height.

What is Javiad's height in meters?

_____ m _____cm

Practice Time

1. Money from different countries

Have you seen any notes or coins used in any other country?

State Bank has a chart to show us how many Indian rupees we can get when we change the money of different countries.

Country	Money	Changed into Indian Rupees
Korea	Won	0.04
Sri Lanka	Rupee (SL)	0.37
Nepal	Rupee	0.63
Honk Kong	Dollar (HK)	5.10
South Africa	Rand	5.18
China	Yuan	5.50
U.A.E.	Dirham	10.80
U.S.A.	Dollar	39.70
Germany	Euro	58.30
England	Pound	77.76

(This is the rate on 15-2-2008)

   a. The money of which country will cost the most in Indian Rupees?

   b. Basit's uncle in America had sent him 10 USA dollars as a gift. Basit used 350 rupees for a school trip. How much money was left with him?

   c. Majeed's father is working in Saudi Arabia. He gets 1000 Saudi Riyals as salary. Imtiyaz's father who is working in Sri Lanka gets 2000 Sri Lankan rupees. Who gets more Indian rupees as salary?
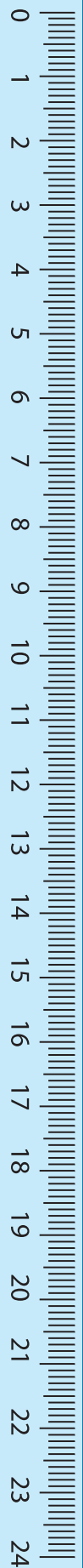
d. Sabreena's aunty brought a present for her from China. It costs 30 Yuan. Find what it costs in Indian Rupees.

e. Nayeema wants some Hong Kong Dollars and Won.
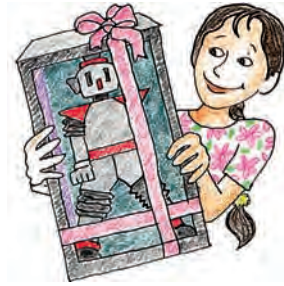
1. How many Won can she change for Rs 4? For Rs 400?

2. How many Honk Kong Dollars can she change for Rs 508?

2) Deeba went shopping with Rs 200. Look at the bill. The shopkeeper forgot to put the point correctly in the prices. Put the point in the correct place and find out the total amount of the bill.

Item	Quantity	Price (Rupees)
Soap	1	1250
Green gram	1kg	5025
Tea	250 gm	2725
Coconut oil	1 litre	6000
	Total	

3) Which City is cool?

I live in Himachal. There the temperature in winter is 2° Celsius sometimes water in pipes freezes into ice.

But in Rajasthan where I live the temperature reaches 48° Celcius. Here it is very hot. One has to walk kilometres to get water.
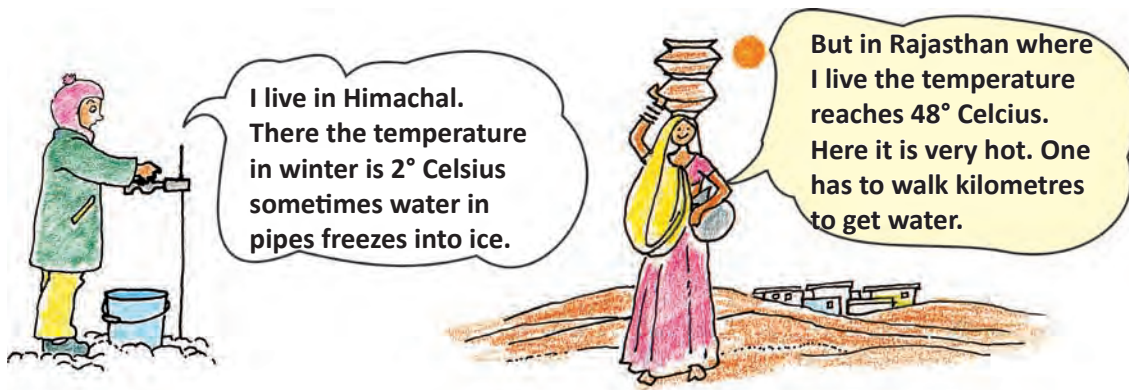
The temperature in each city was noted at 3 pm on 16 January 2008.

1. Which place had the highest temperature at 3 pm? Which place is the coolest at that time?

2. How much higher is the temperature in Mumbai from that in Srinagar?

Srinagar 8.1°C
Jaipur 23.2°C
Kolkata 26.6°C
Guwahati 24.8°C
Bhopal 25.9°C
Mumbai 35.1°C
Chennai 29.9°C
Thiruvananthapuram 33.5°C
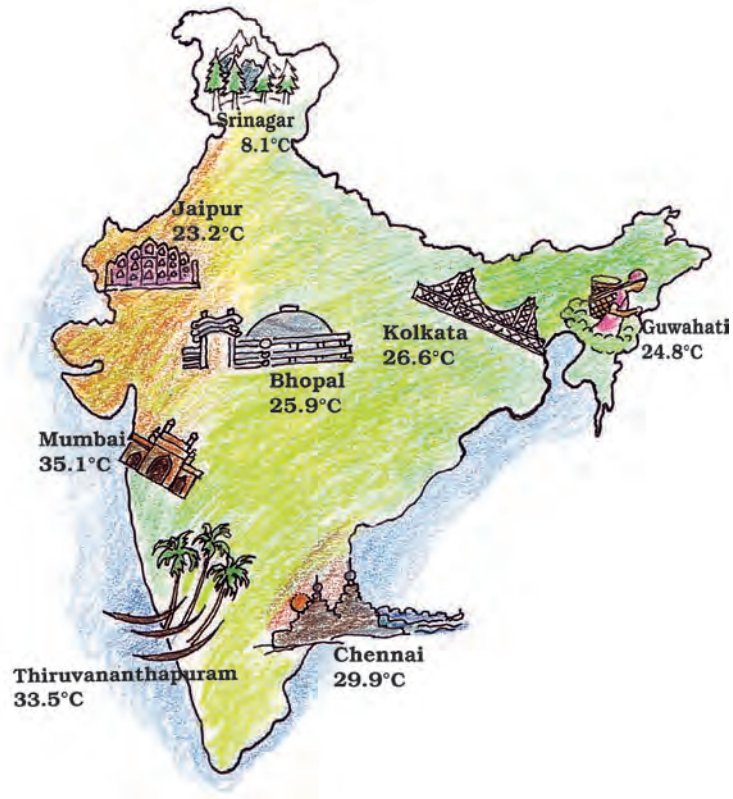
3. How many degrees will the temperature need to rise for it to reach 40° C in Thiruvananthapuram?

4. How much lower is the temperature of Kolkata from that in Chennai?

5. The temperature in these cities was also noted at 3 am on the same day. Look at the table and answer the questions.

a. Which place had the lowest temperature at 3 am? Imagine yourself to be there and describe how it would feel.

b. What is the difference between the temperatures at 3 pm and 3 am in Chennai? In Bhopal?

City	Temperature at 3 am
Chennai	21.1
Mumbai	19.0
Th'puram	21.6
Kolkata	13.1
Bhopal	9.8
Srinagar	1.3
Guwahati	12.8
Jaipur	10.2
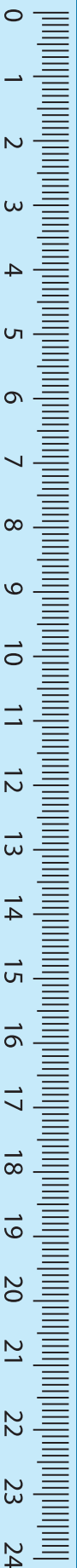
Now Let Us Do These

Q.NO.1 Which part is shaded? Give answer in decimals.

a)

=_____.

b)

= _____

c)

= _____
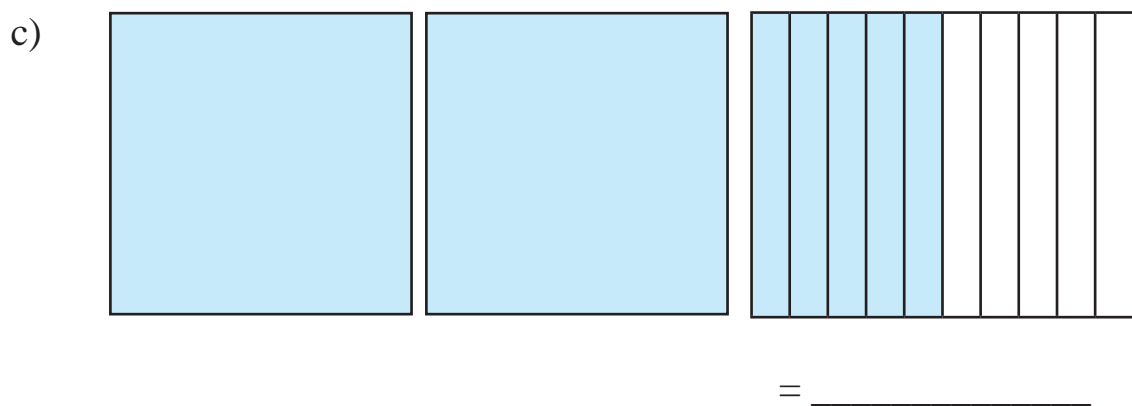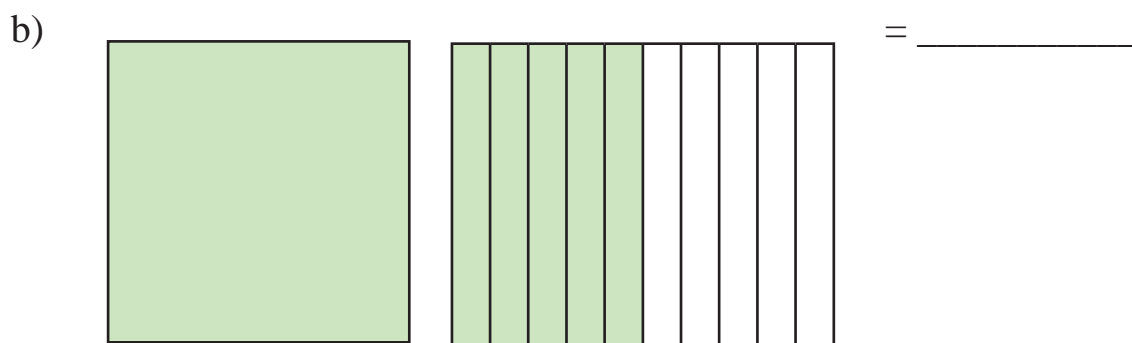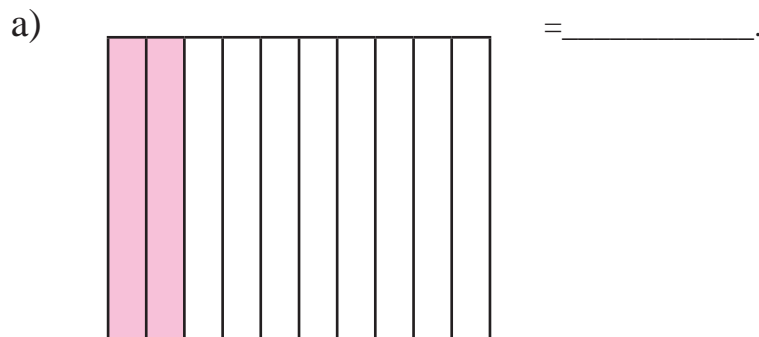
Q.NO.2 Match the following:

a) 4.1 (I) Two and three Tenths

b) 2.3 (II) One and one Tenths

c) 1.1 (III) Five tenths

d) 0.5 (IV) Four and one tenths

Q.NO. 3 Write in decimal form:

a) 4 ones and 7 tenths

b) 8 ones, 9 tenths and 6 hundredths

c) 5 ones , 7 tenths and 8 hundredths

Q.NO. 4 Give the next three terms:

(a) 1.2, 1.3, 1.4, ___, ___, ___

(b) 5.92, 5.93, 5.94, ___, ___, ___

(c) 11.8, 11.9, 12.0, ___, ___, ___

(d) 8.01, 8.02, 8.03, ___, ___, ___

(e) 6.07, 6.08, 6.09, ___, ___, ___

Q.NO.5 Match the following

(a) $\frac{3}{10}$ (I) 1.53

(b) $\frac{24}{10}$ (II) 0.03

(c) $\frac{3}{100}$ (III) 0.3

(d) $\frac{24}{100}$ (IV) 2.4

(e) $\frac{153}{100}$ (V) 0.24

Q.NO. 6 Express as a decimal:

(a) $\frac{72}{100}$ (b) $\frac{8}{10}$ (c) $\frac{137}{100}$

Express as a fraction:

(a) 0.04 (b) 15.63 (c) 1.31
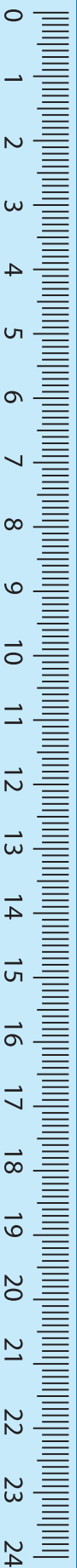
Q.NO. 7   Fill in the blanks with equivalent decimals or fractions.

(a) $0.6 = 0.60 = 0.$___

(b) $1.7 = 1.70 =$ ___

(c) $2.4 =$ ___ $= 2.400$

(d) $\dfrac{3}{10} = \dfrac{30}{100} =$ ___

(e) $\dfrac{15}{10} = \dfrac{150}{100} =$ ___

Answers

Q.NO.1

(a) 0.2   (b) 1.5   (c) 2.4

Q.NO.2

(a) ⇔ IV   (b) ⇔ I   (c) ⇔ II ;   (d) ⇔ III

Q.NO.3

(a) 4.7   (b) 8.96   (c) 5.78

Q.NO. 4

(a) 1.5, 1.6, 1.7   (b) 5.95, 5.96, 5.97   (c) 12.1, 12.2, 12.3

(d) 8.04, 8.05, 8.06   (e) 6.10, 6.11, 6.12

Q.NO. 5

(a) ⇔ III,   (b) ⇔ IV,   (c) ⇔ II,   (d) ⇔ V,   (e) ⇔ I

Q.NO. 6

(a) 0.72   (b) 0.8   (c) 1.37 and

(a) $\dfrac{4}{100}$ (b) $\dfrac{1563}{100}$ (c) $\dfrac{131}{100}$

Q.NO. 7

(a) 0.600   (b) 1.700   (c) 2.40   (d) $\dfrac{300}{1000}$ (e) $\dfrac{1500}{1000}$

Area and its Boundary

Whose Slice is Bigger?

Salim and Rukaiya bought *aam paapad* [dried mango slice] from a shop.

Their pieces looked like these.

Both could not make out whose piece was bigger.

6 cm

5 cm
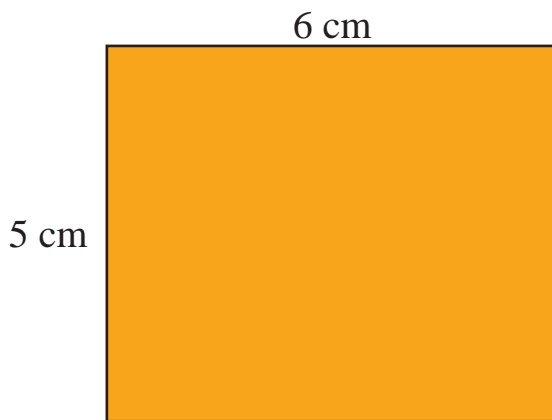
Piece A

❖ Suggest some ways to find out whose piece is bigger. Discuss.

A friend of Salim and Rukaija showed one way, using small squares.

11 cm

3 cm
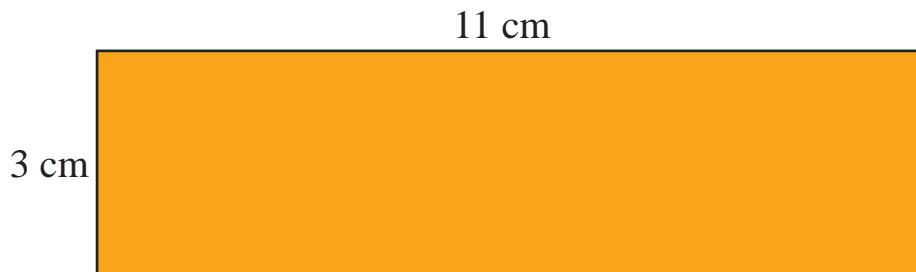
Piece B

The length of piece A is 6 cm.

So 6 squares of side 1 cm can be arranged along its length.

The width of piece A is 5 cm.

So 5 square can be arranged along with its width.

❖ Altogether how many squares can be arranged on it? _____

❖ So the area of piece A = _____ square cm.
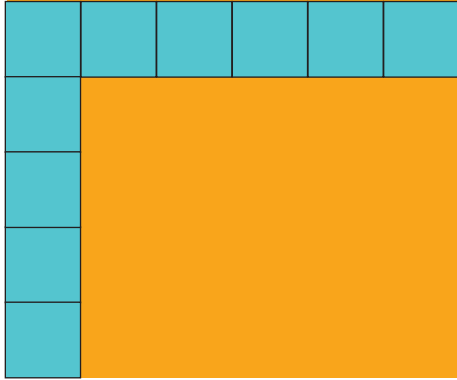
It's silly to count them all! Just multiply!

Piece A

❖ In the same way find the area of piece B.

❖ Who had the bigger piece? How much bigger?

Cover with Stamps

This stamp has an area of 4 square cm. Guess how many stamps will cover this big rectangle.
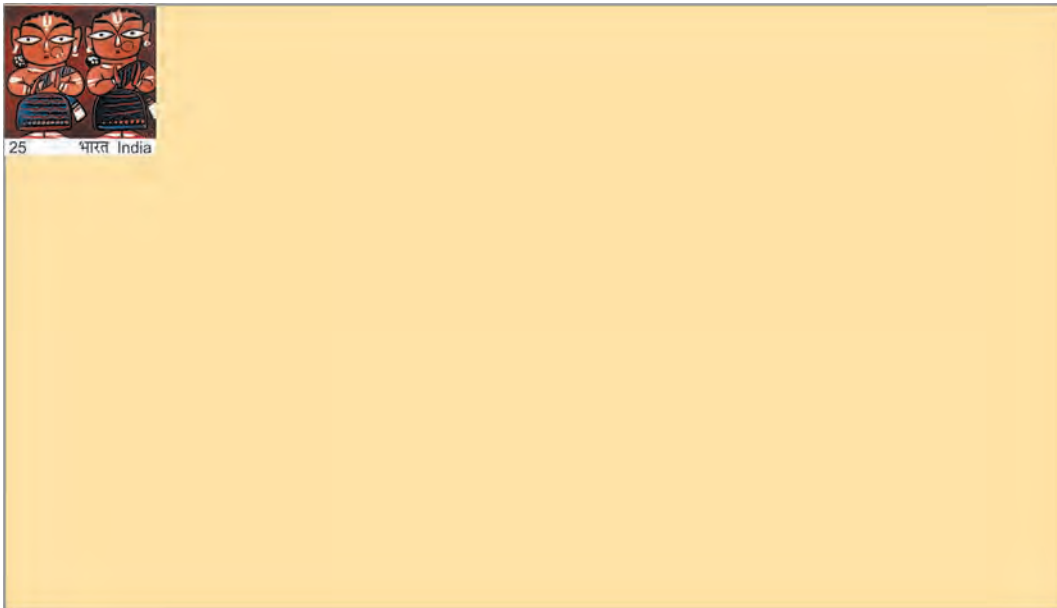
Check your guess

a. Measure the yellow rectangle. It is _____ cm long.

b. How many stamps can be placed along its length? _____

c. How wide is the rectangle? _____ cm

d. How many stamps can be placed along its width? _____

e. How many stamps are needed to cover the rectangle? _____

f. How close was your earlier guess? Discuss.

g. What is the area of the rectangle? _____ square cm.

h. What is the perimeter of the rectangle? _____ cm.

Practice Time

a. Adnan plans to tile his kitchen floor with green square tiles. Each side of the tile is 10 cm. His kitchen is 220 cm in length and 180 cm wide. How many tiles will he need?

b. The fencing of a square garden is 20 m in length. How long is one side of the garden?

c. A thin wire 20 cm long is formed into a rectangle. If the width of this rectangle is 4 cm, what is its length?

d. A square carom board has a perimeter of 320 cm. How much is its area?

e. How many tiles like the triangle given here will fit in the white design?

Area of design = _____ square cm.

This triangle is half of the cm square
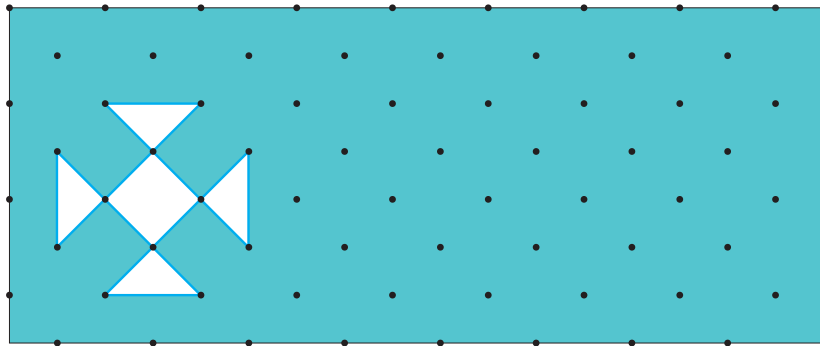
f. Ambreen, Ulfat, Mudasir and Kabir made greeting cards. Complete the table for their cards:

Whose card	Length	Width	Perimeter	Area
Ambreen	10 cm	8 cm		
Mudasir	11 cm		44 cm	
Ulfat		8 cm		80 square cm
Kabir			40 cm	100 square cm

My Belt is Longest!

Take a thick paper sheet of length 14 cm and width 9 cm. You can also use an old postcard.

❖ What is its area? What is its perimeter?

❖ Now cut strips of equal sizes out of it.

Using tape join the strips, end to end, to make a belt.

❖ How long is your belt? _____

❖ What is its perimeter ____

❖ Whose belt is the longest in the class? ____

Discuss

❖ Why did some of your friends get longer belts than others?

❖ Is the area of your belt the same as the area of the postcard? Why or why not?

❖ What will you do to get a longer belt next time?

This belt is for the elephant.

Look! I can pass through a postcard. I made a loop without cutting the strips.

Puzzle: Pass through a Postcard

Can you think of how to cut a postcard so that you can pass through it? (See photo.) If you have tried hard enough and still not got it… look for the answer somewhere ahead.

People People Everywhere

A)   You can play this game in a ground.

Make two squares of one square metre each.

Divide your class in two teams. Ready to play!

With four Merry-Math books in a line you can get the length of around one metre 9 cm.

Try these in your teams –

❖ How many of you can sit in one square metre? _____

❖ How many of you can stand in it? _____

❖ Which team could make more children stand in their square?

How many? _____

❖ Which team could make more children sit in their square? How many?

Measure the length of the floor of your classroom in metres. Also measure the width.

❖ What is the area of the floor of your classroom in square metres? _____

❖ How many children are there in your classroom? _____

❖ So how many children can sit in one square metre? _____

❖ If you want to move around easily then how many children do you think should be there in one square metre? _____

Can you imagine how big a square of side 1 km is! It has an area of _____ square km. guess how many people can live on that.

In West Bengal there are about 900 people living in a square km. But in Arunachal Pradesh it feels very lonely! There are less than 15 people living in a square km!

Share the Land

Mubeena is a farmer who wants to divide her land equally among her three children – Asmat, Iram and Altaf. She wants to divide the land so that each piece of land has one tree. Her land looks like this.
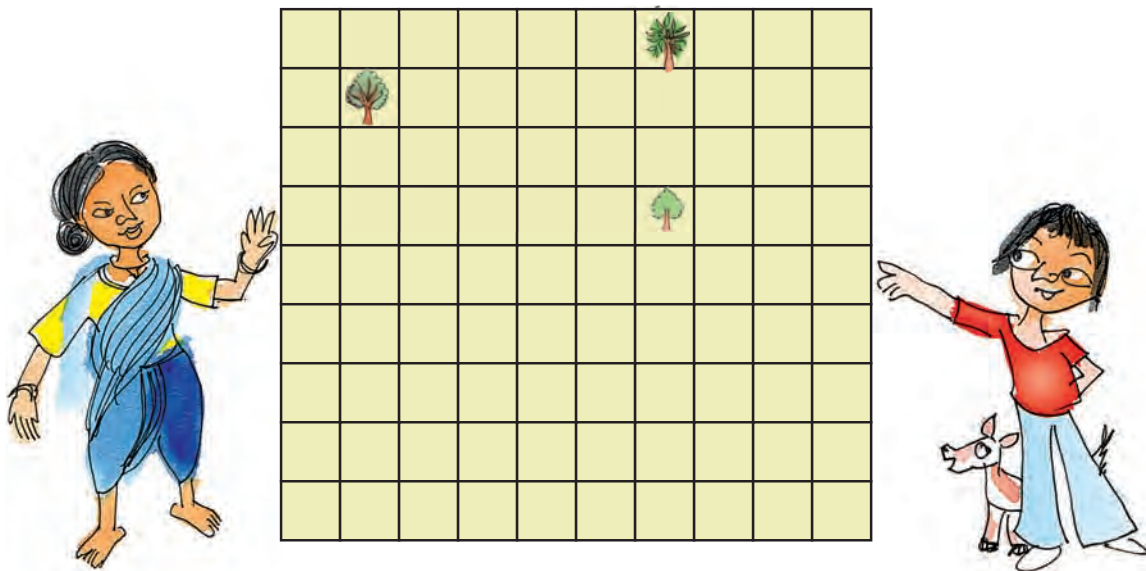
❖ Can you divide the land equally? Show how you will divide it. Remember each person has to get a tree. Colour each person's piece of land differently.

❖ If each square on this page is equal to 1 square metre of land, how much land will each of her children get? _____ square m

Asmat, Iram and Altaf need wire to make a fence.

❖ Who will need the longest wire for fencing? _____

❖ How much wire in all will the tree need? _____

Practice Time

A.   Look at the table. If you were to write the area of each of these which colomn would you choose? Mark a (✓)

		Square cm	Square metre	Square km
	Handkerchief	✔		
	Sari			
	Page of your book			
	School Land			
	Total land of a city			
	Door of your classroom			
	Chair seat			
	Blackboard			
	Indian flag			
	Land over which a river flows			

B.   Draw a square of 9 cm. write A on it.

Draw another square with double the side.

Write B on it.

Answer these –

1. The perimeter of square A is _____ cm.

2. The side of square B is _____ cm.

3. The area of square B is _____ square cm.

4. The area of square B is _____ times the area of square A.

5. The perimeter of square B is _____ cm.

6. The perimeter of square B is _____ times the perimeter of square A.

Answer – Pass Through a Postcard (page 142)

1.
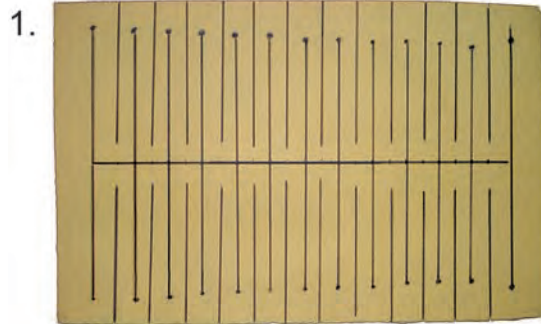
Make lines on a postcard like this.

2.
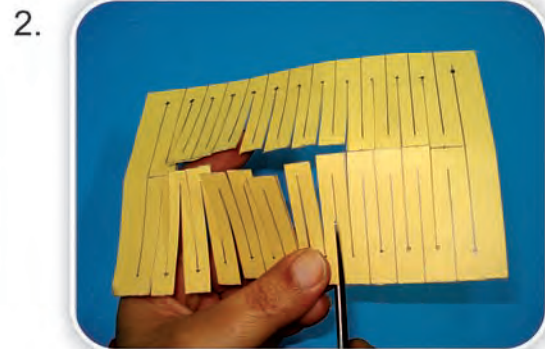
Cut the postcard only on the lines.

So, can you pass through it!

❖ You know the area of the loop, don't you? It is

_____

3.

Thread Play

Take a 15 cm long thread. Make different shapes by joining its ends on this sheet.
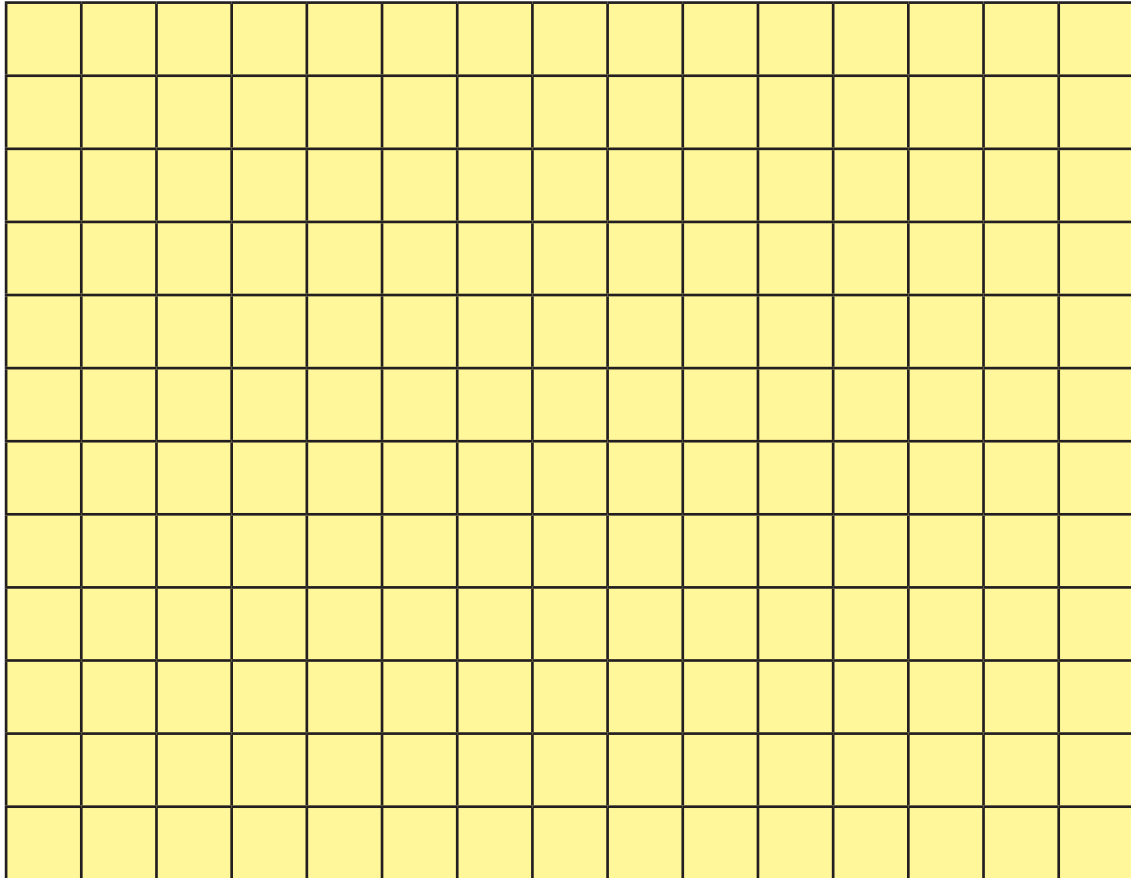
A)   Which shape has the biggest area? How much? _____

What is the perimeter of this shape? _____

B)   Which shape has the smallest area? How much? _____

What is the perimeter of this shape? _____

Also make a triangle, a square, a rectangle and a circle. Find which shape has the biggest area and which has the smallest.

Save the Birds

There are two beautiful lakes near a village. People come for boating and picnics in both the lakes. The village Panchayat is worried that with the noise of the boats the birds will stop coming. The Panchayat wants motor boats in only one lake. The other lake will be saved for the birds to make their nests.

1 cm on this drawing = 1 km on the ground
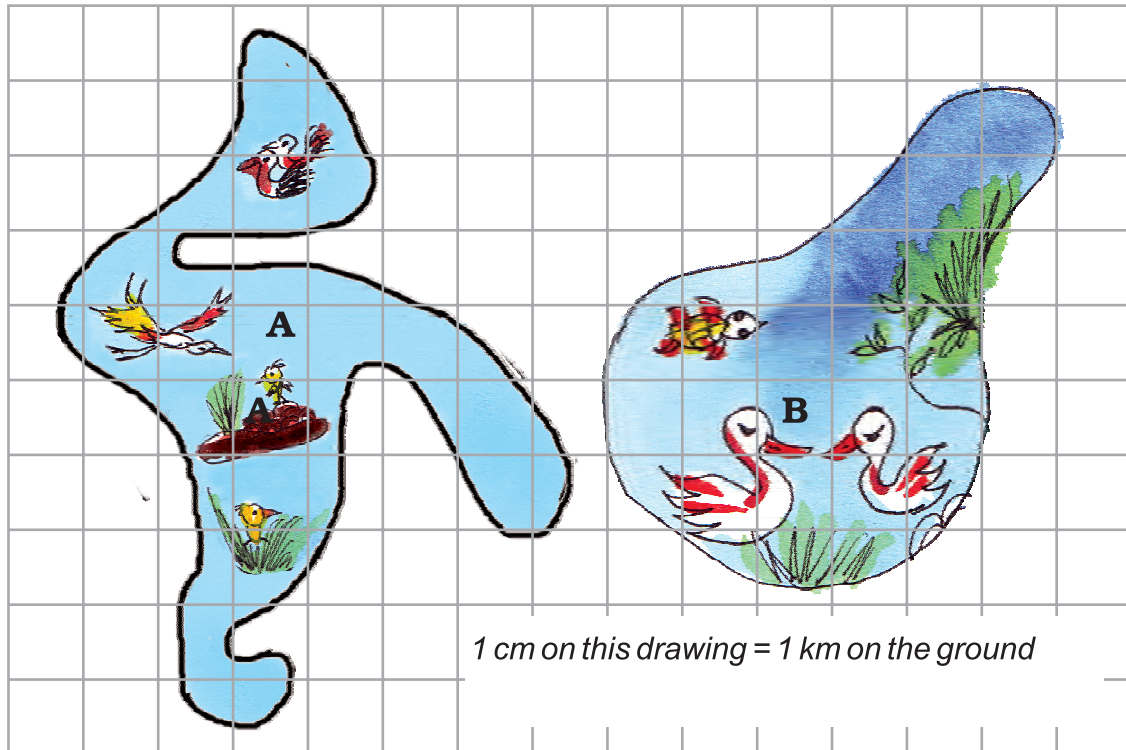
a. How many cm is the length of the boundary of Lake A. in the drawing? _____ (use thread to find out)

b. What is the length of the boundary of Lake B in the drawing?

c. How many kilometers long is the actual boundary of Lake A?

d. How many kilometers long is the actual boundary of Lake B?

e. A longer boundary around the lake will help more birds to lay their eggs. So which lake should be kept for birds? Which lake should be used for boats?

f. Find the area of lake B on the drawing in square cm. what is its actual area in square km?

King's Story

The king was very happy with the carpenters. Balbir and Kuldeep. They had made a very big and beautiful bed for him. So as gifts the king wanted to give some land to Balbir, and some gold to Kuldeep.

Balbir, take as much land as what comes within 100 meters of wire.

Balbir was happy. He took 100 meters of wire and tried to make different rectangles.

He made a 10 m × 40 m rectangle.

Its area was 400 square meters.

So he next made a 30 m × 20 m rectangle.

Ah! I want this piece of land. It covers 800 square metres.

- ❖ What is its area? Is it more than the first rectangle?

- ❖ What other rectangles can he make with 100 m of wire? Discuss which of these rectangles will have the biggest area?

Balbir's wife asked him to make a circle with a wire. She knew it had a area of 800 square meters.

❖ Why did Balbir not choose a rectangle? Explain.

> Ok. Balbir has taken 800 square meters of land.
> Kuldeep! Now I will give you as much gold wire
> which can make a boundary for land with area
> 800 square metres.

So Kuldeep also tried many different ways to make a boundary for 800 square metres of land.

❖ He made rectangles A, B, and C of different sizes. Find out the length of the boundary of each. How much gold wire will he get for these rectangles?

40 m × 20 m

Gold wire for A = _____ meters

80 m × 10 m

Gold wire for B = __meters

800 m × 1 m

Gold wire for C = _____ meters

But then Kuldeep made an even longer rectangle …… See how longer!

8000 m × 0.1 m

So he will get ____ metres of gold wire!!

Now do you understand why the king fainted!!!

Gosh! How can I give so much gold?

Can you make a rectangle with a still longer boundary? I made a rectangle 1 cm wide and 80000 m long. Imagine how long that boundary will be!!! With that much gold wire I can become the king!

Now Lets Us Do These

Q.NO.1   Find the area of the rectangle with sides 30 cm and 50 cm.

Q.NO.2   if the area of a square 'A' is 1600 sq. cm and if the area of a square B is 40sq.cm then find the number of squares of type B obtained from square A.

Q.No.3   If the area of a rectangle is 250 sq. cm and the length of rectangle is 25 cm then find the width of the rectangle.

Q.No.4   If the dimensions of a rectangle are 20 cm and 10 cm, then find the parameter of a rectangle.

Q.No.5   If the perimeter of a rectangle is 60 cm and it is 10 cm wide. Find its Length.

Q.No.6   From figure find the area of region B.
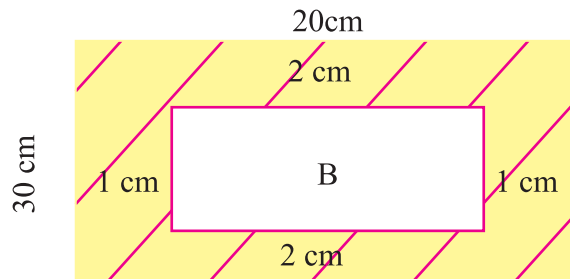
Q.NO. 7   In a rectangular plot of land:

A: Plot of land

B: Wet land

Find the area of B when area of A = 200 Sq. mts.
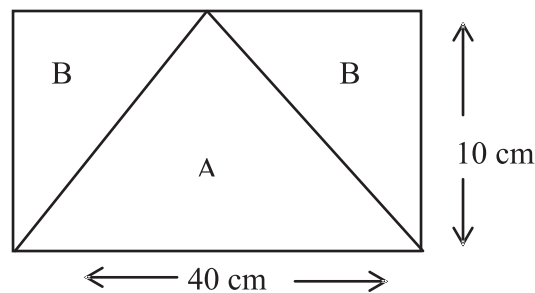
Answers

Q.No.1	1500 sq cm	Q.No.2	40
Q.No.3	10 cm	Q.No.4	60 cm
Q.No.5	40 cm	Q.No.6	200sq.cm
Q.N0.7	558 sqm		

Smart Charts

Chi – Chi, Meow – Meow

Rumaisa did a project 'Animals and Birds'. She asked each child of her class about one favourite pet animal.

She used **tally marks** to record each answer. For example if someone said 'cat' she put one line | in front of 'cats'. When some one said 'cat' again, she added a line. So ⌐ means two cats and ⊠ means 5 cats. In all 24 children said 'cat' was their favourite animal. Help Rumaisa complete the table.

Animal	Tally Marks	Number
Cats	⊠ ⊠ ⊠ ⊠ ☐	24
Dogs	⊠ ⊠ ⊠ ⊠ ⊠ ⊠ ⊠⌐	
Rabbits	⊠ ⊠	
Cows	⊠ ⊠ ⊠ ⊠ ⌐	
Parrots	⊠ ⌐	
Goats	⊠ ⊠ ⊠ ⊠	
Squirrel	⊠ ⊠ ⊠	

❖ Look at the tally marks and write the number for each animal in the table. How many children in all did Rumaisa talk to?

❖ Which is the most favourite pet animal in this table?

❖ Which pet animal you like to have? What will you name it? Which other animals can be kept at home? Discuss.

Try yourself

❖ Take a round in your colony. Find out how many types of trees you can see there. Do you know their names? You can make drawings. Use tally marks to note the number of different trees.

Helping Hands

In the EVS period, the teacher asked children whether they help their parents at home. They were different answers. Children named the work in which they help their parents the most. The teacher collected their answers and made a table.

Help most in house work	Number of children
Going to the market	47
Washing utensils	15
Washing clothes	3
Making, serving food	25
Cleaning the house	10
Total children who said they help their parents	

Now you can fill the chapatti chart to show the numbers given in the table.

1. Look and find out

Children who help in making or serving food are

> a. One-third of the total children.
>
> b. Half of the total children
>
> c. One-fourth of the total children

Cleaning
the house
10
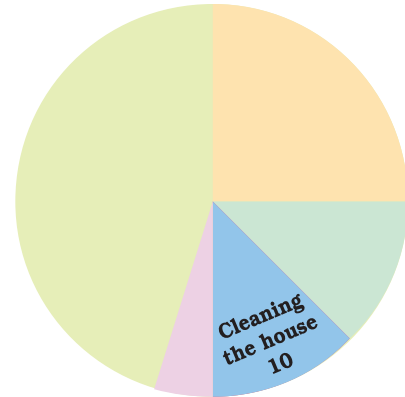
2. Practice time: After School

Ask 10 of your friends about what they like to do most after school

What they like to do after school	Number of children
Watching TV	
Playing	
Reading storybooks	

163

Ad Mad!!

Nazima loves to watch cartoons on television. One day she thought of counting the number of ads during the breaks. She found that in each break there were 14 advertisements. In 10 of those ads there were children as actors.
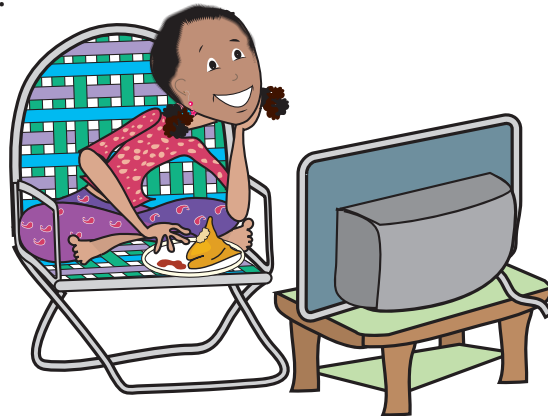
❖ Why do you think that children are used in so many ads?

❖ Use tally marks to count the number of ads during a short break in a programme?

❖ Were there ads during the news programme?

Try yourself

❖ Next time when you watch your favourite TV programme, count the number of advertisements during each break. Use tally marks. Put a dot below the tally when you find children in any advertisement.

❖ Compare with your friends. Do you get different answers?

Rabbits in Australia

Earlier there were no rabbits in Australia. Rabbits were brought to Australia around the year 1780.At that time there were no animals in Australia which ate rabbits. So the rabbits became to multiply at a very fast rate. Imagine what they did to the crops!

The table shows how rabbits grew every year.

Time	Number of rabbits
Start	10
1 year	18
2 year	32
3 year	58
4 year	108
5 year	
6 year	

1. After each year the number of rabbits was-

a. a little less than double the number of rabbits in the last year.

b. double the number in the last year

c. 8 more than the number in the last year.

d. more than double the number of rabbits in the last year.

2. At the end of year 6, the number of rabbits was close to

☐ 400   ☐ 600   ☐ 800

3. After which year did the number of rabbits cross 1000?

Day	Length of the plant (in cm)
0	0
4	1.4
8	5.3
12	9.5
16	10.2
20	10.9

Growth Chart of a Plant

Amir sowed a few seeds of *moong dal* in the ground. The height of the plant grew to 1.4 cm in the first four days. After that it started growing faster.

Amir measured the height of the plant after every four days and put a dot on the chart. For example if you look at the dot marked on the fourth day, you can see on the left side scale than it is 1.4 cm length.

Now look at the height of each dot in cm and check from the table if he has marked the dots correctly.

Length of plant (in cm) vs Days growth chart

Find out from the growth chart

a. Between which days did the length of the plant change the most?

   i) 0-4 ii) 4-8 iii) 8- 12 iv) 12-16 v) 16-20

b. What could be the length of this plant on the 14th day? Guess.

   i) 8.7 cm ii) 9.9 cm iii) 10.2 cm iv) 10.5 cm

c. Will the plant keep growing all the time? What will be its length on the 100th? day? Make a guess!

Now Let Us Do these

Q.NO.1   Name three charts used to represent the data.

Q.NO.2   Draw a pictograph showing following information.

Class	I	II	III	IV	V
Number of boys	40	50	30	30	20

Q.NO.3   In a village number of people using different modes of transport to go their offices are as follows. Draw bar graphs for the given data:

Bicycle	50%
Bus	30%
Car	5%
Autorikshaw	10%
Others	5%

Q.NO.4   In a city numbers of people speaking different languages (percent wise) is given as:

Kashmiri –	40%
Urdu -	30%
Hindi -	10%
English -	10%
Dogri -	5%
Others-	5%

Draw a chapatti chart (Pie chart) for the data given.

Answers

Q.NO.1   Pictographs, Bar graphs, Chapatti charts

Q.NO.2

Class	Tally Marks	Number
I	▱ ▱ ▱ ▱	40
II	▱ ▱ ▱ ▱ ▱	50
III	▱ ▱ ▱	30
IV	▱ ▱ ▱	30
V	▱ ▱	20

Q.NO.3
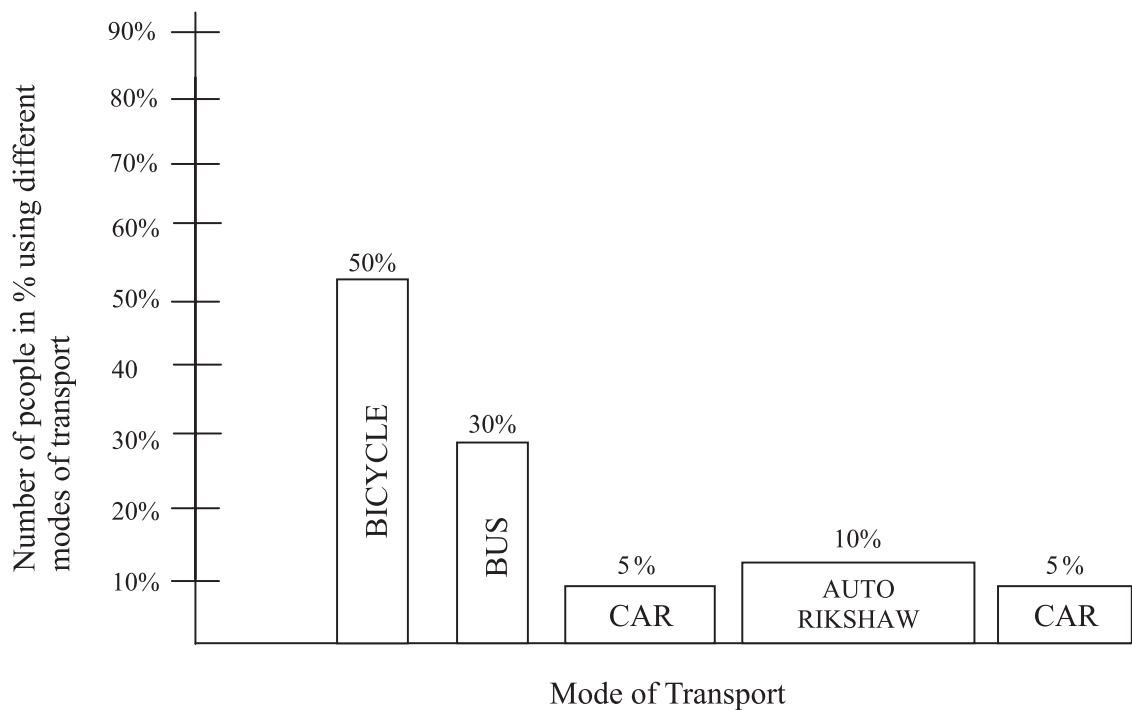
Ways to Multiply and Divide

Chapter 11

Jibran – The Cashier

Jibran is the cahier of King Ahsan. His job is to find out the salary of all the people who work for the king. This chart shows how much salary each person gets in a day.

Person		Salary in a day
Minister	—	Rs 195
Horse rider	—	Rs 76
Cook	—	Rs 65

Jibran wanted to calculate the salary of the cook for the month of January. He wrote-

	60	5
30	60 × 30 **1800**	5 × 30 **150**
1	60 × 1 **60**	5 × 1 **5**

Rupees 1800 + 150+60 + 5 = Rs _____

Jibran's daughter Iram has learnt method to multiply. She wrote this and showed it to Basit, her brother.

Now Basit tried to find the salary of a minister from the month of January. He wanted to multiply 195×31.

$$
\begin{array}{r}
195 \\
\times\ 31 \\
\hline
195 \\
+\ \_\_\_0 \\
\hline
\end{array}
$$

(195 × 1)

(195 × 30)

To multiply by 30 I first write a zero here. Then I only have to multiply by 3.
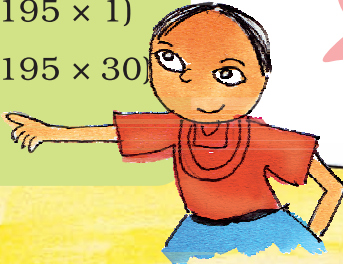
Practice Time

1. Use Iram method to multiply these numbers.

   a. 32×46

   b. 67×46

$$
\begin{array}{r}
32 \\
\times\ 46 \\
\hline
192 \\
+\ \_\_\_\_ \\
\hline
\end{array}
$$

(32 × 6)

(32 × 40)

$$
\begin{array}{r}
67 \\
\times\ 46 \\
\hline
\_\_\_ \\
+\ 2680 \\
\hline
\end{array}
$$

(67 × 6)

(67 × __)

2. Do these in your notebook using Iram's method.

   (a) 47×19 (b) 188×91

   (c) 63×57 (d) 225×22

   (e) 360×12 (f) 163×42

Jagdeep a Special Cook

❖ Jagdeep is a special cook who comes only on party days. Last year he was called for only 28 days .For each day he has to be paid Rs 165. Find out how many money he will get in all.

❖ If he is called for all days of the year, how much salary will he gat?

$$
\begin{array}{r}
165 \\
\times 365 \\
\hline
\_\ \_\ \_ \\
\_\ \_\ \_ \\
+ 49500 \\
\hline
\\
\hline
\end{array}
\quad
\begin{array}{l}
\{\ 165 \times 5\ \} \\
\{165 \times 60\} \\
\{165 \times 300\}
\end{array}
$$

❖ Now find the salaries of the minister and horse rider for 1 year.

Years and Years

a. Zubair drink 8 glasses of water every day.

❖ How many glasses will he drink in one month? _____

❖ How many glasses will he drink in one year?

❖ If 125 people living in a colony drink 8 glasses of ware in a day, how much water will they drink in a year?
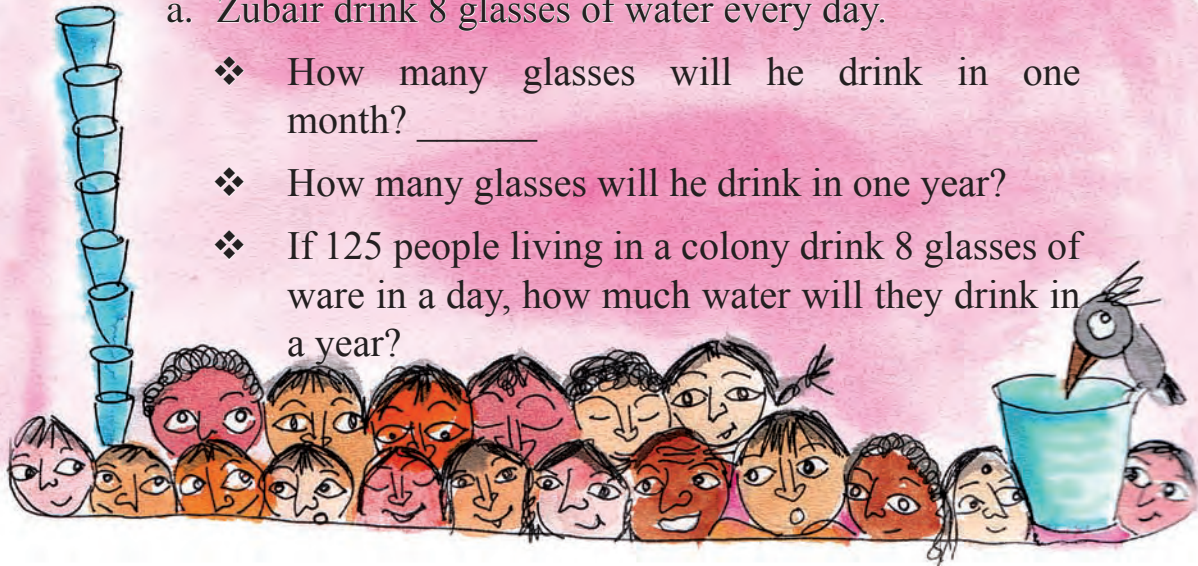
b. If Iqra's heart beats 72 times in one minute, how many times does it beat in one hour?

❖ Now find out how many times it beats in one day.

❖ Count your own heart beats in one day.

❖ Count your own heart beats to find out how many times your heart beats in one week.

Guess how many times it beats in one year.

c. A baby elephant drinks around 12 L of milk every day. How much milk will it drink in two years?

d. A baby blue whale drinks around 200 L of milk in one day. Just imagine how much milk that is! Find out in how many days your family would use 22 L milk. How muck milk would the baby blue whale drink in eight months?
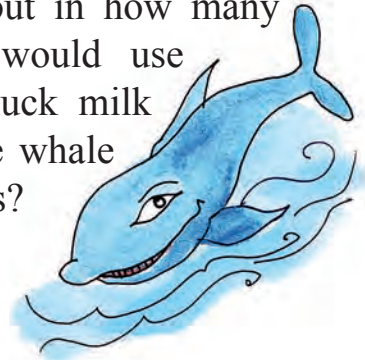
Muzamil- The Landlord

Muzamil bought three fields.

Field (A) — 27 m, 28 m
Field (B) — 36 m, 12 m
Field (C) — 27 m, 19 m
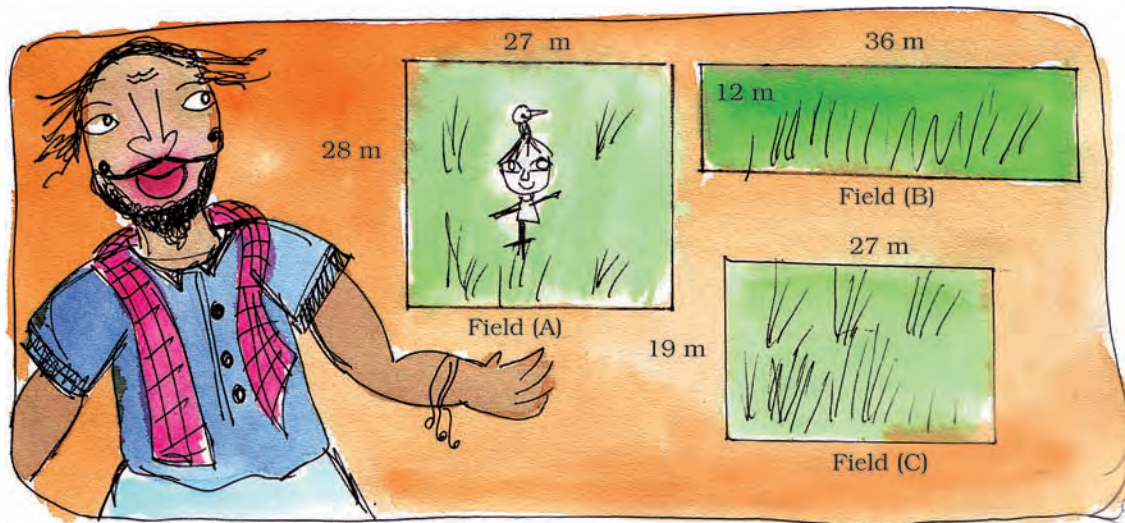
❖ Find the area of all the three fields.

Field (A) _____ square metre.

Field (B) _____ square metre.

Field (C) _____ square metre.

Hum, did he spend more than a lakh of rupees!

He bought field (A) at the rate of Rs 95 for a square, field (B) at Rs 110 for a square metre and field (C) at Rs 120 for a square metre.

❖ Find the cost of all three fields.

Nusrat and her husband work on Muzamil's farm. The government has said that farm workers should be paid at least Rs 71 for one day's work. But he pays Rs 55 to Nusrat and Rs 58 to her husband.

If Nusrat works for Rs 49 days, how much money does she get?_____

If her husband works for 42 days, how much money does she get?_____

Find the money they earn together._____

Oh! He does not give them the minimum wage.

And why does he pay less to Nusrat and more to her husband? Discuss

I saw this in the newspaper. Governments of different states have said that farm workers should not be paid less than this salary for a day's work.

State	Salary for one day
Haryana	Rs 135
Rajasthan	Rs 73
Madhya Pradesh	Rs 97
Orissa	Rs 75

The table shows the amounts fixed by four states.

a. For farm work which state has fixed the highest amount? Which state has fixed the lowest?

b. Farooq is a worker in Rajasthan. If he works for 8 weeks on the farm, how much will he earn?

c. Nayeema is a worker in Haryana. If she works for $2\frac{1}{2}$ months on the farm, how much will she earn?

d. How much more will a farm worker in Madhya Pradesh get than a worker in Orissa after working for 9 weeks?

Ahmad's Story

Ahmad is a 13 year old boy. His father had taken a loan for farming. But the crops failed. Ahmad's mother has to pay Rs 5000 every month for the loan.

Ahmad started working __ he worked after 17 goats of the village.

He earns Rupee 1 everyday for one goat.

❖ How much will he earn in one month?

❖ Does he earn enough to help pay the loan every month?

❖ How much will he earn in one month?

Zamrooda's story

To help farmers the state Government gave cows. Zamrooda also got a cow. The cost of the cow was Rs 17,500. She has to pay Rs 5,500 and the government spent the rest of the money.

❖ How much did the government spend on the cow?

❖ If 9 people from her village got cows, how much did the government spend in all?
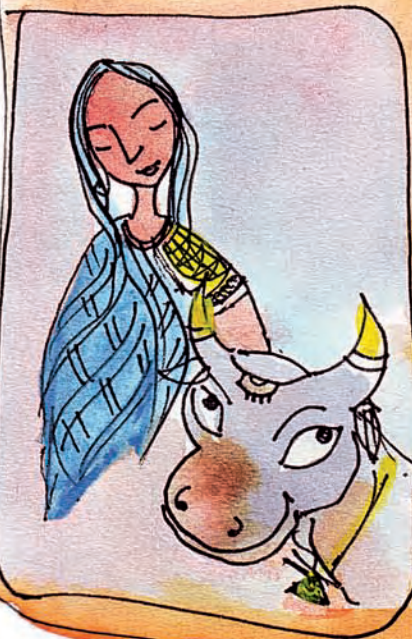
But Zamrooda was not happy. She had to spend Rs 85 everyday on the cow. She made some money by selling the milk. But still she wanted to sell the cow.

❖ If Zamrooda spends Rs 85 a day. Find out how much she will spend in one month.

The cow gives 8 litres of milk everyday. How much will it give in one month?

❖ If the milk is sold at Rs 9 per litre, how much money will Zamrooda make in one month? _____

Find out — how much do you pay for 1 litre of milk?

So the money spent on keeping the cow was Rs _____

Money earned by selling the milk Rs _____

Which is more ___ spent on the cow or money earned from it? How much?

❖ Explain why she wanted to sell the cow.

Practice time

a. Farooq works on a farm. He is paid Rs 98 for one day.

If he works for 52 days, how much will he earn?

b Ishfaq took a loan to build his house. He has to pay back Rs 2,750 every month for two years. How much will he pay back in 2 years?

c. Athar is a milk seller in the city. He sells 13 litres of milk everyday at Rs 23 per litre. How much does he earn?

d. A farmer sells 1 litre of milk for Rs 11. In one month he sells 210 litres of milk. How much does he earn in a month?

e. A company sells 1 litre of packed water for Rs 12. A shopkeeper buys 240 litres of packed water. How much does he pay?

Oh God! Water costs more than milk!! In the city people buy water for Rs 12 per litre!

Fun with multiplication

A)   Look for the pattern and take this forward.

(0×9) $+ 1$ $=$ 1

(1×9) $+ 2$ $=$ 2

(12×9) $+ 3$ $=$ 111

(123×9) $+ 4$ $=$ _____

(1234×9) $+ 5$ $=$ _____

$(12345 \times 9) + 6$ $=$ _____

B)   Each letter a, b, c stands for a number.

$$
\begin{array}{r}
a\,a\,a \\
\times\, a\,a\,a \\
\hline
a\,a\,a \\
a\,a\,a\,0 \\
a\,a\,a\,0\,0 \\
\hline
a\,b\,c\,b\,a \\
\hline
\end{array}
$$

C)   Tricks with your age.

Write your age _____

Multiply it by 7 _____

Again multiply the answer by 13 _____

Multiply again that answer by 11 _____

Now look at your last answer. Can you find your age in that answer? How many times does your age show in the answer?

Now try this trick with other people.

Division

Sheemu took a loan from a friend to buy a moped for Rs 9,588. She has to pay it back in equal amounts every month for six months.

❖ How much will she have to pay every month? She asked her children to calculate.

Her daughter did it this way.

$$500 + 500 + 500 + 90 + 8$$

```
   9 5 8 8
6)
 - 3 0 0 0
   6 5 8 8
 - 3 0 0 0
   3 5 8 8
 - 3 0 0 0
     5 8 8
 -   5 4 0
       4 8
 -     4 8
        ×
```

Her son started this way. Now you complete it.

$$1000 +$$

```
   9 5 8 8
6)
 - 6 0 0 0
 _____
 _____
 _____
 _____
```

Will both of them get the same answer? Discuss.

Practice Time

Try to solve these using as few steps as you can.

a) 4228 ÷ 4   b) 770 ÷ 22   c) 9872 ÷ 8

d) 672 ÷ 21   e) 772 ÷ 7   f) 639 ÷ 13

How Many Times?

976 children are going on a picnic. They will be taken in mini buses. If 25 children can go in one bus, how many buses do they need?
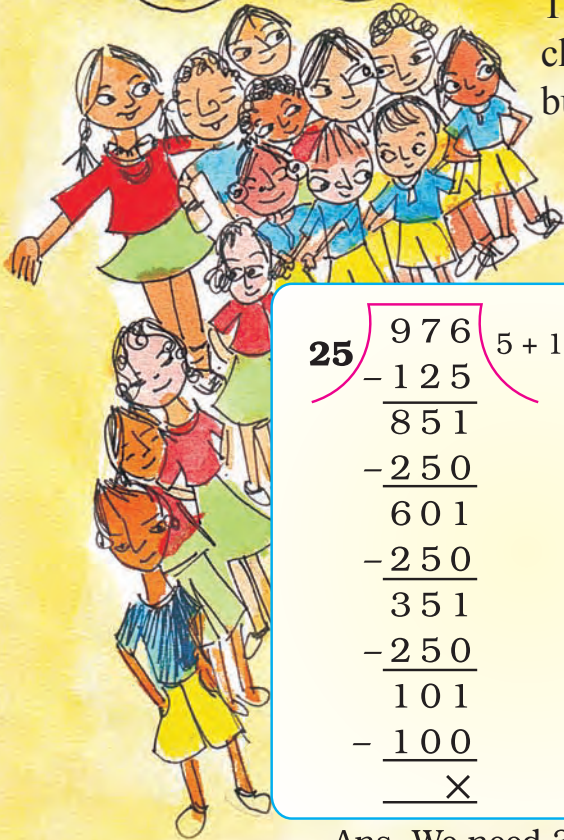
❖ Two children have solved it. Check if they have made a mistake- correct it. Discuss.

$$
\begin{array}{r}
25 \overline{\smash{\big)}\,976} \quad 5 + 10 + 10 + 10 + 4 \\
-125 \\
\hline
851 \\
-250 \\
\hline
601 \\
-250 \\
\hline
351 \\
-250 \\
\hline
101 \\
-100 \\
\hline
\times
\end{array}
$$

Ans. We need 39 buses.

$$
\begin{array}{r}
25 \overline{\smash{\big)}\,976} \quad 20 + 10 + 9 + 1 \\
-500 \\
\hline
467 \\
-250 \\
\hline
226 \\
-125 \\
\hline
11
\end{array}
$$

Ans. We need 40 buses.

How much petrol?

Afroza has Rs 1000 with her. She wants to buy petrol. One litre of petrol costs Rs 47.How many litres can she buy?

Money with Afroza = Rs 1000

Cost of 1 litre = Rs 47

Litres of petrol she can buy = Rs 1000 ÷ Rs 47 =?

Afroza can buy_____ litres of petrol.

Find out

If Afroza comes to your city, how much petrol can she buy with the same money?

Children's Day

Children are happy today. They are celebrating children's day. Each child will be given 4 coloured pencils from school. The school has got 969 pencils. To find out how many children can get the teacher asks them to divide.

Maria's Way   Rukhsana's Way

$$4\ \overline{)969}\ \ 100\ +$$
$$-\ 400$$

$$4\ \overline{)969}\ \ 200\ +$$
$$\underline{-\ \ \ }$$

Complete Maria's and Rukhsana's way of division. What is the answer you get?

Practice Time

❖ 526 books are to be packed in boxes. If one box has 24 books, how many boxes are needed?

❖ 836 people are watching a movie in a hall. If the hall has 44 rows, how many people can sit in 1 row?

❖ A gardener bought 458 apple trees. He wants to plant 15 trees in each row. How many rows can he plant?

How many trees would be left over?

Brain Teaser

❖ Dilshada bought a battery. She read on it 'Life: 2000 hours'. She uses it throughout the day and the night. How many days will the battery run?

More with Multiplication and Division

❖ A tank is full of 300 L of water. How much water will be filled in 25 tanks? If 15 buckets can be filled with one tank, how many buckets in all can be filled with the water in 25 tanks?

❖ There are 28 laddoos in 1 kg. How many laddoos will be there in 12 kg? If 16 laddoos can be packed in 1 box, how many boxes are needed to pack all these laddoos?

❖ There are 26 rooms in a school. each room has 4 plants. If each plant needs 2 cups of water, how much water do we need for all the plants?

Make the Best Story Problem

Each line gives a story. You have to choose the question which makes the best story problem. The first one is already marked.

1. A shopkeeper has 50 boxes. There are 48 fruits in one box.

   Tick the one question which matches with the given problem.

   a.   How much will the shopkeeper pay in all? ☐

   b.   How many fruits are there in all? ✔

   c.   How many more boxes will he needed? ☐

   Explain why (a) and (c) are not good choices.

2.   352 children from a school went on a camping trip. Each tent had a group of 4 children.

   a.   How many children did each tent have? ☐

   b.   How many tents do they need? ☐

   c.   How many children in all are in the school? ☐

3. A shopkeeper has 204 eggs. He puts them in egg trays. Each tray has 12 eggs.

   a.   How many more eggs will he need? ☐

   b.   How many fresh eggs does he sell? ✓

   c.   How many eggs trays does he need? ☐

4. The cost of one book is Rs 47. Sweety buys 23 books.

    a. How much money does she have?

    b. How much money does she pay for the books?

    c. What is the cost of 47 books?

Cross check for Ramzan

Ramzan wanted to divide Rs 2,456 amongst his 4 sons. He asked his eldest son to tell him how much money each one will get.

Papa, each of us will get 2456 ÷ 4 = Rs 624.

When Ramzan started giving Rs 624 to each son, he was left with less money for the youngest one.

It seems you have made some mistake in the calculations. Let me check.

Ramzan multiplied 624 with 4. He got = Rs 2,469

Hum! This shows you have done the division wrong.

The son did the division again 2456 ÷ = 614. Before telling his father he checked on his own.

614 × 4 = 2456. Now, it is correct. Each one will get Rs 614.

Practice Time

1   Do these divisions. Check your results by multiplication.

    a) $438 \div 9$ b) $3480 \div 12$ c) $450 \div 7$

    d) $900 \div 10$ e) $678 \div 6$ f) $2475 \div 11$

2   Solve the given sums and colour the answers in the grid given below. See what you find.

21×6	15×7	93×2	17×5	10×10
26×26	77×10	50×10	11×11	59×7 31×19
85×30	64×42	3200×40	19×3	248×8
$432 \div 18$	$729 \div 9$	$825 \div 5$	$221 \div 13$	$576 \div 12$
$288 \div 4$	$869 \div 11$	$847 \div 7$	$981 \div 3$	$475 \div 19$

545	110	434	642	709	623	919	341	72	168
984	165	561	608	236	513	529	62	259	905
709	907	367	632	336	121	492	178	431	475
165	806	584	186	100	589	72	717	248	676
624	80	105	24	165	17	85	770	126	500
247	997	485	2688	81	80	48	901	327	121
742	427	756	531	79	2550	347	1001	314	57
945	1000	687	854	1200	999	24	3126	918	53
109	799	845	1999	864	955	123	1234	678	56
549	459	614	1864	834	559	900	1111	268	171

Now Let Us Do These!

Q.NO.1   Multiply

i) 5986×42 ii) 1348×42 iii) 9307×17 iv) 123×123

Q.NO. 2   Complete the pattern:

a) $1 \times 9 - 1 = 08$
$21 \times 9 - 1 = 188$
$321 \times 9 - 1 = 2888$
$4321 \times 9 - 1 = 3\_\_\_\_$
$\_\_\_\_\_ \times 9 - 1 = 48888$
$654321 \times \_\_ -1 = _____$
b) $37 \times 3 = 111$
$37 \times 6 = 222$
$37 \times 9 = 333$
$37 \times \_ = 444$
$37 \times 15 = \_\_\_\_$
$37 \times 21 = \_\_\_\_$

Q.NO.3   Kabir saved Rs.565 a month. How much did he save in 5 years?

Q.NO. 4   There are 560 children in a school. Rs.20 is spent on each child every day. What is the amount spent on all children in one day?

Q.NO. 5   Find the product of 888 and the sum of 2676 and 2004?

Answers

Q.NO. 1
i) 251412   ii) 640300
iii) 158219   iv) 15129
Q.NO. 2
Both a) and b) are self explanatory
Q.NO. 3
Rs.33900
Q.NO. 4
Rs. 11200
Q.NO. 5
4155840

How Big? How Heavy?

Saima collects things like marbles, coins, erasers etc. She takes some water in a glass and marks the level of water as 'O'.

If I drop 5 marbles in this glass, can you guess what will be the level of water?

I think this much.

She drops 5 marbles in the glass. She marks the new level of water as 5 marbles.

oh, how did you guess! Do you know the volume of a marble

I just made a guess about how much water will be pushed up by the marbles. How do you find the volume?

See, each marble pushes up some water. Right? That is because it takes up some space which is its volume.

Your Measuring Glass

Now make a guess. Do you think the volume of 10 five-rupee coins will be more than that of 10 marbles?

Guess the volume of each of these:

- ❖ A ball is nearly _____ marbles.
- ❖ An eraser is nearly _____ marbles.
- ❖ A lemon is nearly _____ marbles.
- ❖ A pencil is nearly _____ marbles.
- ❖ A potato is nearly _____ marbles.
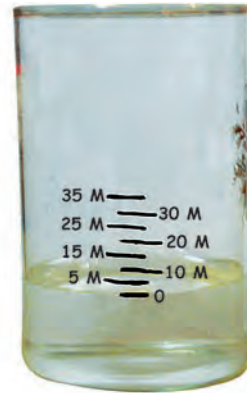
Now make your own measuring glass using 35 marbles.

Take a glass of water and mark the level of water as 'O'. Then put in 5 marbles and mark the level of water as 5 M.

Again drop 5 marbles and mark the level of water as 10 M. Likewise make the markings for 15 M, 20 M, 25 M, 30 M and 35 M.

Now put each thing in the measuring glass and check your guess.

Try with different things like a matchbox, a stone, etc. and fill the table.

Name of the thing	Its volume (nearly how many marbles?)

The matchbox floats. How do I find its volume?

Let's fill it with sand and nails

Which has More Volume?

Can you think of ways for making a measuring bottle which can measure 10 ml, 20 ml, 30 ml, ……, 60 ml? Discuss with your friend.

Afzal and Sakeena made their measuring bottles.

Afzal had an injection. He used it to make a measuring bottle. Sakeena used an empty medicine bottle.

Sakeena used her measuring bottle to find the volume of five-rupee coins. She found that **9 five-rupee coins push up 10 ml of water.** So you can also use 9 five-rupee coins to make your measuring bottle! Go ahead!

Use your measuring bottle to find out:

a]   What is the volume of 6 marbles? _____ ml.

b]   What is the volume of 16 one-rupee coins? _____ ml.

Now solve these in your mind.

c]   The volume of 24 marbles is _____ ml.

d]   The volume of 32 one-rupee coins? _____ ml.

e]   Mollie puts some five- rupee cons in the measuring bottle.
       How many coins has she put in it:

   ❖   If 30 ml water is pushed up? _____

   ❖   If 60 ml water is pushed up? _____

First guess and then use your measuring bottle to find out the volume in ml of some other things.

Thing	Its Volume (in ml)

Guess how many litres of water your body will push up ?

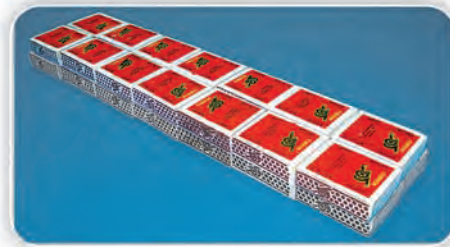## Practice Time

1. A stage (platform) is made with Merry Math books. The volume of this stage is the same as _____ cm cubes.

2. Guess the volume of these things in cm cubes.

❖ A matchbox is about _____ cm cubes.

❖ A geometry box is about _____ cm cubes.

❖ An eraser is about _____ cm cubes.

How will you check your guess? Discuss.

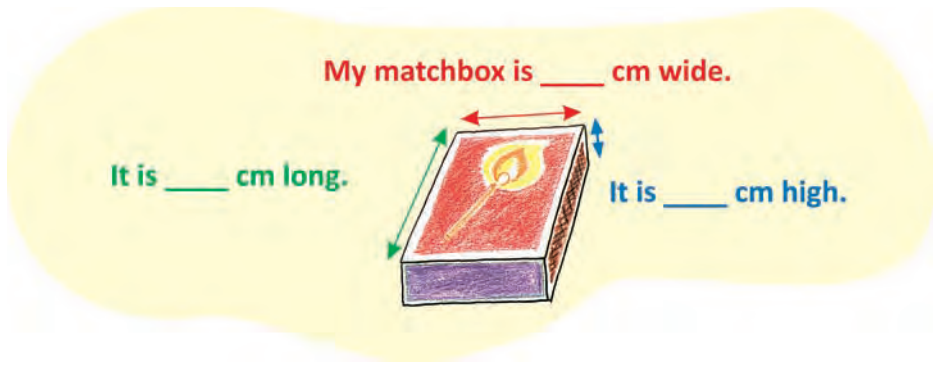## Matchbox

Nusrat is making a stage with matchboxes.

She first puts 14 matchboxes like this in the first layer.

She makes 4 such layers and her stage look like this.

❖ She used _____ matchboxes to make this stage.

❖ The volume of one matchbox is the same as 10 cm cubes.

Then the volume of this stage is the same as _____ cm cube

❖ If all these cubes are arranged in a line, how long will that line be? _____ cm.

❖ Which has more volume_____your Merry Math book or Nusrat's platform?

With your friends, collect many empty matchboxes of the same size. Measure the sides and write here.

My matchbox is ____ cm wide.

It is ____ cm long.

It is ____ cm high.

❖ Use 56 matchboxes to make platforms of different heights.

Fill this table.

	How high is it?	How long is it?	How wide is it?
Platform 1			
Platform 2			
Platform 3			

The volume of each platform is equal to _____ matchboxes.

❖ Make deep drawings of the platforms you have made.

How Big is your Cube?

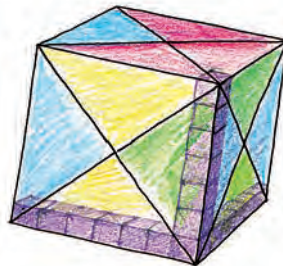How many cm cubes in all do I need to make a platform as big as the paper cube?

1. a) How long is the side of your cube? _____

   b) How many centimetre cubes can be arranged along its:

   ❖ Length? _____

   ❖ Width? _____

   ❖ Height? _____

Irfan

c)   Answer Irfan's questions:

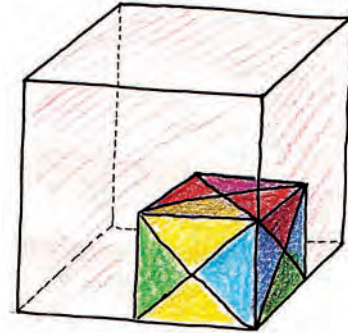To make the first layer on the table how many cm cubes will I use? _____

How many such layers will I need to make a paper cube? _____

d)   So the total cm cubes = _____

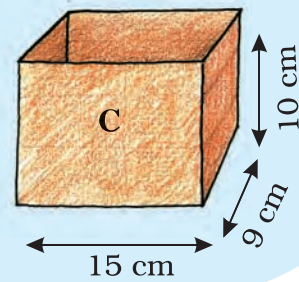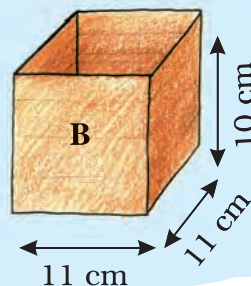e)   The volume of the paper cube is same as _____cm cubes.

2. Arif made a big cube having double the side of your paper cube.
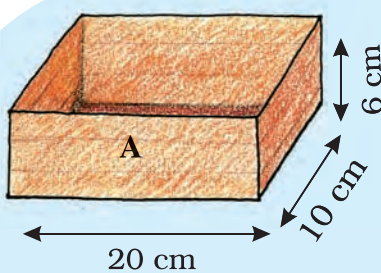
    How many of your paper cubes will fit in it? Try doing it by collecting all the cubes made in your class.

Packing cubes

Muzamil and Irfan want to pack 4000 centimetre cubes in boxes. These are to be sent to a school. There are three different boxes available for packing.

A   20 cm   10 cm   6 cm

B   11 cm   11 cm   10 cm

C   15 cm   9 cm   10 cm

Muzamil   Irfan

Will we be able to fit all 4000 cubes in these three boxes? I think we need one more box for it.

I think there is enough space in these boxes to pack all 4000 cubes.

❖ What is your guess? Who is right?

❖ How can Muzamil and Irfan test their guesses before packing the cubes in the boxes? Discuss with your friend.

Look at Box A. In the first layer we can arrange 20 × 10 = 200 cubes. And 6 such layers can be packed. So in box A we can arrange 200 × 6 = 1200 cubes.

Use Muzamil's method and write.

❖ _____ centimetre can be arranged in box B.

❖ _____ centimetre cubes can be arranged in box C.

❖ So _____ centimetre cubes in all can be packed in the three boxes.

Find out and discuss

- ❖ How do people who cannot see make out different notes and coins? (Hint: Look for a shape ▲, ■, ●, ▬ etc. on notes of Rs 20,50,100,500 etc and feel it.)

- ❖ What should we look for to check if a 100-rupee note is real or fake?

Now Let Us Try These

Q.NO.1   1 litre = _____ ml

Q.NO.2 a) $\dfrac{25}{10}$ ☐ $\dfrac{15}{20}$ (use >, <, =)

b) $\dfrac{3.5}{10}$ ☐ $\dfrac{0.9}{100}$

Q.NO.3 Find the volume of a cube with edges 5 cm.

Q.NO.4 The chemistry book is having edges 2 cm, 5 cm, and 3 cm while as mathematics book is having edges 3 cm, 2 cm and 10 cm. Thus find out whose book is having more volume.

Answer

1. 1000ml
2. a) >
   b) >
3. 125 cm^3
4. Mathmatics book has more volume.