

**Let's pave the way for learning and
Move Forward**

**Standard - 7
Mathematics**



**State Council of Educational Research and Training (SCERT), Kerala
2022**

Dear students,

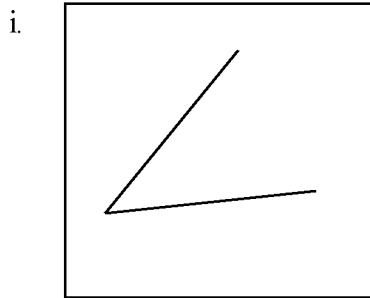
The evaluation of the answer scripts of the First Terminal Examination 2022 and the classroom experiences shared by the teachers concerned, have brought to light the fact that our children have suffered some serious learning gap due to the non-availability of proper learning experiences as a result of the unprecedented situation created by the Covid Pandemic from 2019 to 2022. An activity book has been designed to assist children internalize the concepts which they ought to have mastered in the previous classes and with the intention to facilitate further learning. Necessary explanations and activities are included in the booklet to help children bridge the gap. It is hoped that this package will facilitate the learners for self-study or for studying with the help of their teachers and I wish them success in their endeavors to move forward with confidence.

Director
SCERT, Kerala

2. Parallel Lines

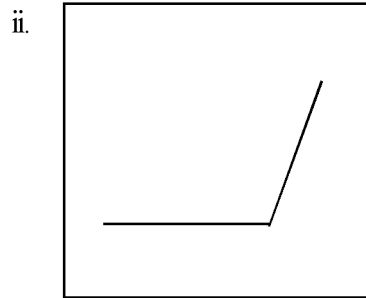
Parallel Lines - 1

1. Guess the measure of each angle. Then find their actual measure.



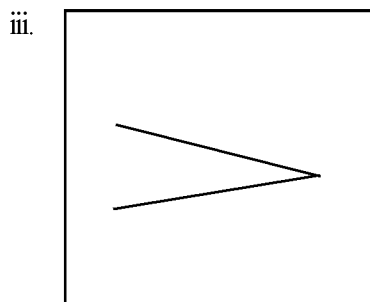
Guess:

Actual measure:



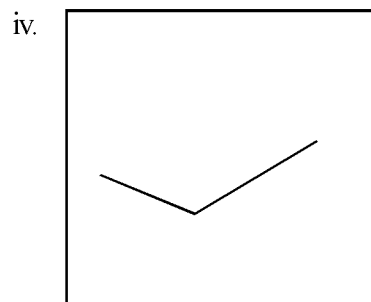
Guess:

Actual measure:



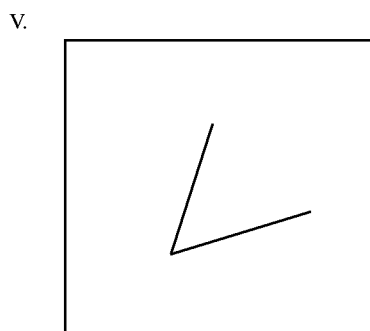
Guess:

Actual measure:



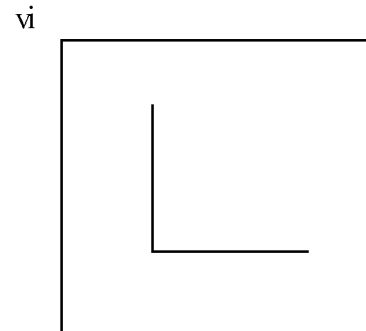
Guess:

Actual measure:



Guess:

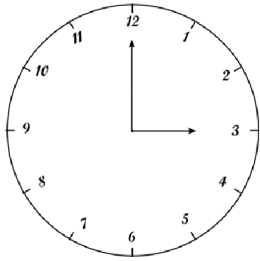
Actual measure:



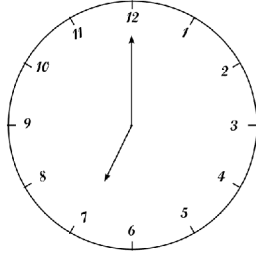
Guess:

Actual measure:

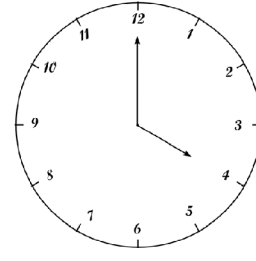
2. Write the measure of the angle between the needles in each clock.



.....

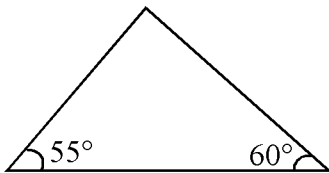


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.....

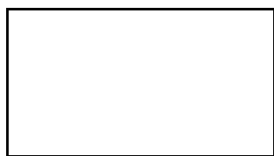
3.



Write the measure of the third angle of the triangle.

.....

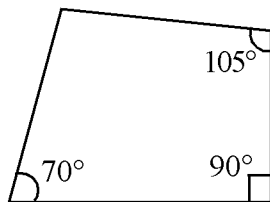
4.



Write the measure of each angle in the figure.

.....

5.



What is the measure of the fourth angle in the figure?

.....

Parallel Lines - 2

1. Draw angles of measures given below.

i. 40°

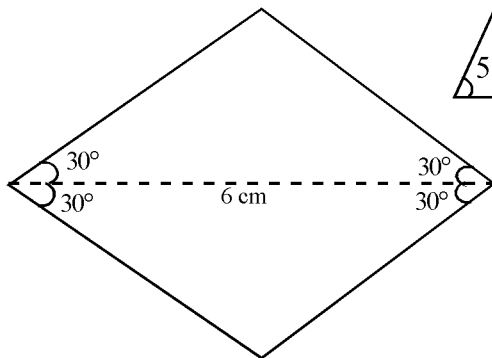
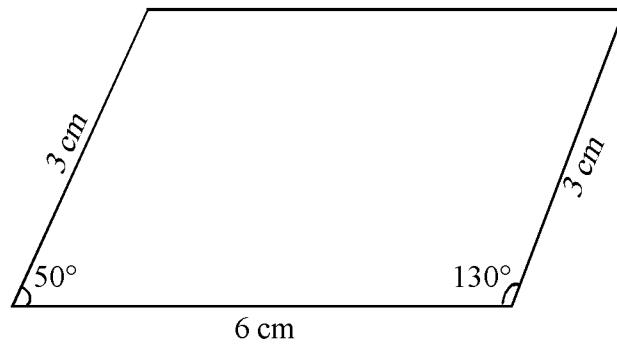
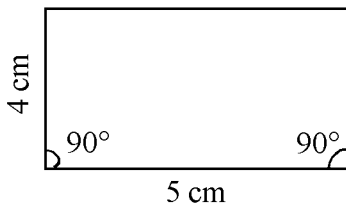
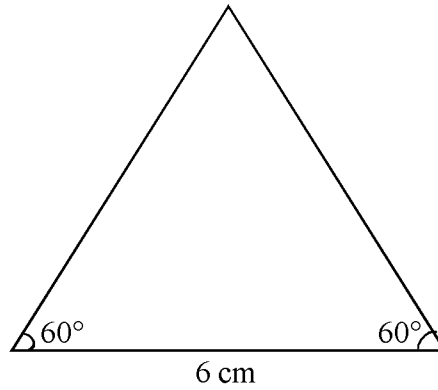
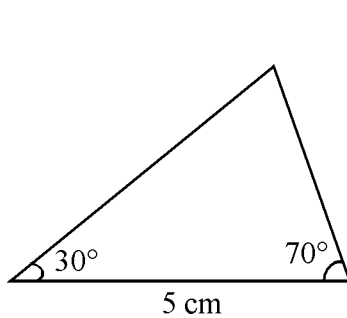
ii. 75°

iii. 110°

iv. 90°

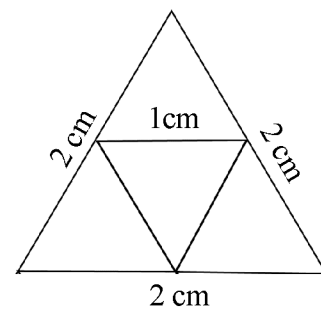
v. 140°

2. Draw figures using the measures given below.



3. • See the figure. Draw the figure using the given measures. Give different colours to different triangles.

• Draw a triangle of each side 3 centimetres. Divide it into smaller triangles of side 1 centimetre and colour them.



3. Unchanging relations - 1

- Numbers are written in two columns.

5	10
13	18
15	20
25	30
27	32

There is a common relation between the numbers in the two columns. Let's find. We can write this relationship in 3 different ways.

- Numbers in the second column are 5 more than the numbers in the first column.
- Numbers in the first column are 5 less than the numbers in the second column.
- Difference between the numbers in the two columns is 5.

If the number in the first column is f and the number in the second column is s , then write the relations between f and s

1. $s = f + 5$	2.	3.
----------------	----	----

- The relation between two consecutive natural numbers can be written as:

1.
2.
3.

If a and b are two consecutive even natural numbers. a is less than b .

Write the relation between a and b .

1.
2.
3.

Unchanging relations - 2

- See the calendar in a month.

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

What is the relation between the number representing a particular day and the number first below it?

1.
2.
3.

- If t represents a date and b represents the date first below it, then how can we represent the relation between t and b ?

1.
2.
3.

- How can we write the relation between the total number of students, number of students present and number of students absent in a particular day in a class?

1.
2.
3.

Total = t , present = p , absent = a .

Write three relation using t , p and a .

1.
2.
3.

4. Repeated Multiplication - 1

Answer the following:

- e.g. $6 + 6 + 6 = 3 \times 6 = 18$
1. $4 + 4 + 4 + 4 + 4 = \text{-----} = \text{-----}$
2. $8 + 8 + 8 + 8 + 8 + 8 + 8 = \text{-----} = \text{-----}$
3. $15 + 15 + 15 + 15 = \text{-----} = \text{-----}$
4. $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \text{-----} = \text{-----}$
5. $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \text{-----} = \text{-----}$

How many matchboxes?

A large lot contains 10 bundles of match boxes. Each bundle contains 10 boxes. Each box contains 10 packets. Each packet contains 10 matches. What is the number of match boxes in the lot.

- In a packet = 10
- In a box = 10×10
- In a bundle = $10 \times 10 \times 10$
- In a lot = $10 \times 10 \times 10 \times 10$

If a number is multiplied repeatedly, we can express the number in the exponential form. When 10 is multiplied 4 times, we can write it is 10^4 . (10 to the power 4)

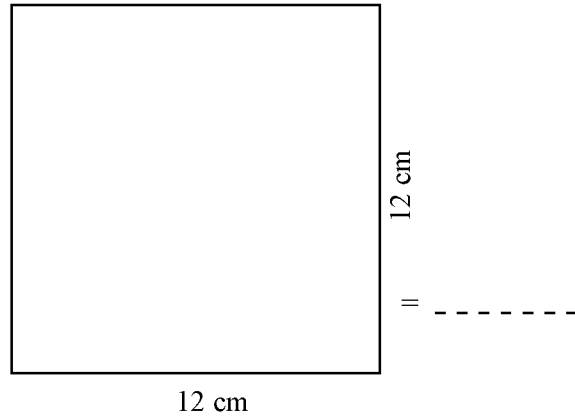
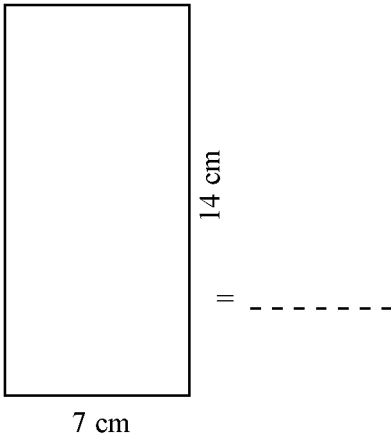
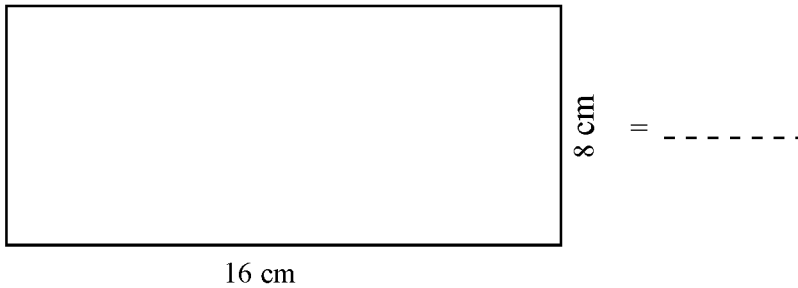
- Like this, $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 2^6$
- $5 \times 5 \times 5 = \text{-----}$
- $8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 = \text{-----}$
- $\text{-----} = 20^6$

So, total match sticks in the basket = $10^4 = \text{-----}$

5. Area of a Triangle - 1

- Find the area of the following rectangles.

- For finding the area of a rectangle multiply the length by the breadth.
- Units of area are square centimetres, square metres, square kilometres and so on.
- Area of a square = side \times side



- If the length of a rectangle is 12 centimetres and its area is 96 square centimetres, then what is its breadth?

- Area of a rectangle if one side 10 centimetres is 200 square centimetres. It is cut into two squares of equal size.

What is the area of each square?

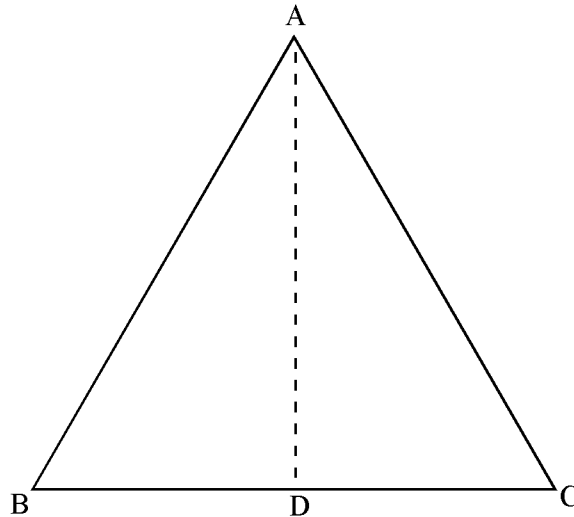
If the rectangle is divided into two triangles of same size, then the area of one triangle is:

Area of a Triangle - 2

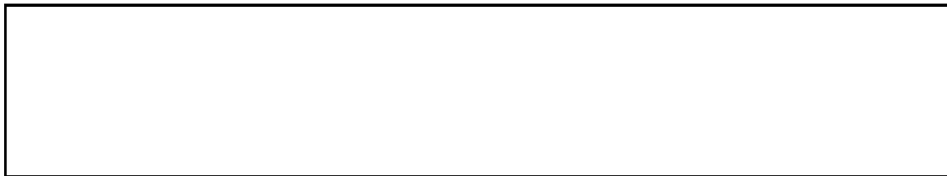
- See the triangle.

All sides are equal measure its angles.

Cut the triangle through the dotted lines.



- Cut the triangle through AD the perpendicular drawn from A to side BC. Observe the two triangles. What is your finding?



- Draw an equilateral triangle of side 6 centimetres.

Mark the corners as A, B and C.

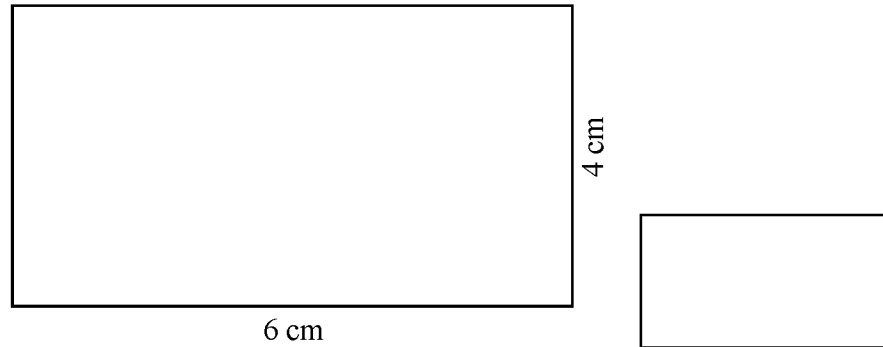
Draw the perpendicular from A to BC. Divide the triangle through this perpendicular.

Observe the triangles.

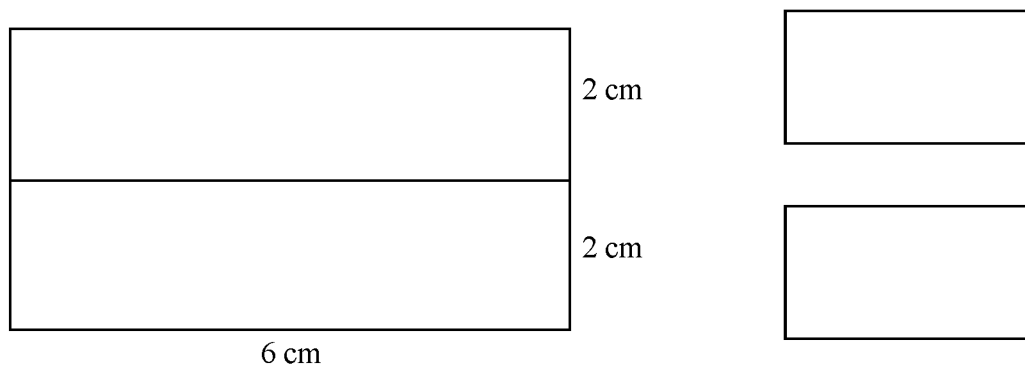
What can you say about the areas of the two smaller triangles?

Area of a Triangle - 3

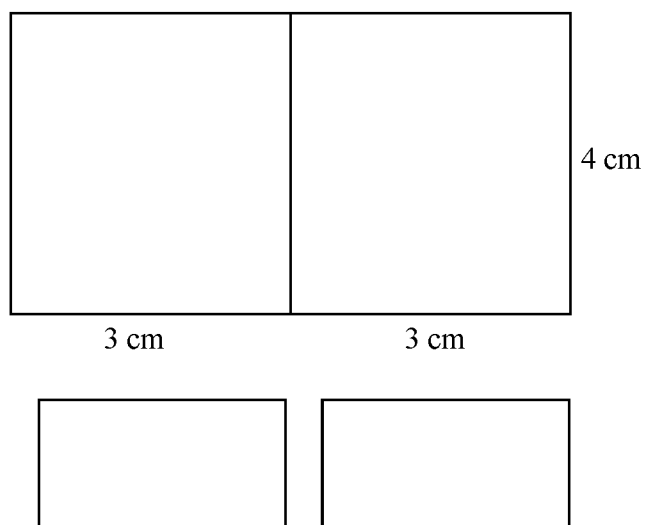
- 1) See the figure. What is the area of this rectangle?



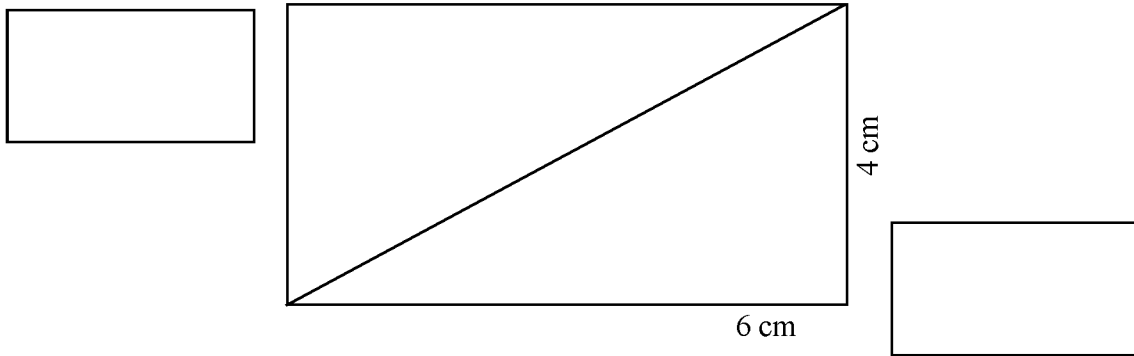
- 2) A line is drawn through the middle as shown in the figure. What is the area of each part?



- 3) A line is drawn through the middle of the rectangle as shown in the figure. What is the area of each part?

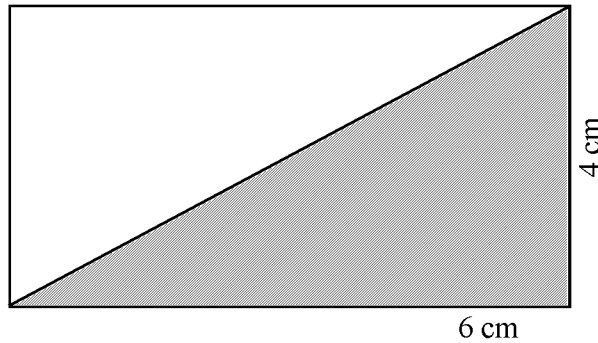


4) As in the figure a line is drawn through the middle of the rectangle. What is the area of each part?



2. See the figure:

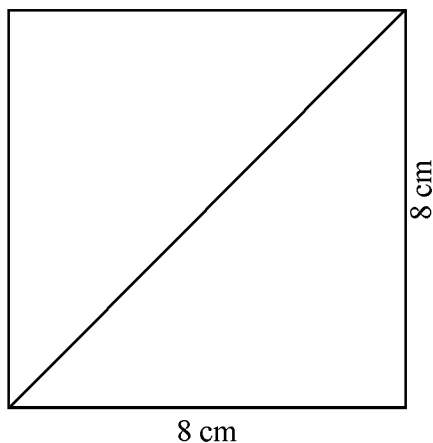
A line is drawn through the middle of the rectangle. Answer the following questions.



- 1) Area of the rectangle. = -----
- 2) Area of the shaded part. = -----
- 3) Area of the unshaded part. = -----

3. See the figure:

A line is through the middle of the square. Answer the following questions.



- 1. What is the area of the square?

- 2. What is the area of one triangle?

- 3. What is the method of finding the area of a triangle with one angle 90° (right triangle)?

6. Square and square root - 1

Find these:

e.g. $3 \times 3 = 3^2 = 9$

1. $5 \times 5 \times 5 = \text{-----} = \text{-----}$

2. $7^3 = 7 \times \text{-----} \times \text{-----} = \text{-----}$

3. $4^2 = \text{-----} \times \text{-----} = \text{-----}$

4. $8 \times 8 = \text{-----} = \text{-----}$

5. $15 \times 15 = \text{-----} = \text{-----}$

6. $10^2 = \text{-----} \times \text{-----} = \text{-----}$

7. $\left(\frac{3}{5}\right)^2 = \text{-----} \times \text{-----} = \text{-----}$

8. $\frac{5}{6} \times \frac{5}{6} = \text{-----} = \text{-----}$

Square and square root - 2

Easy way:

$40 \times 40 = 4 \times 4 \times 100 = 16 \times 100 = 1600$

$200 \times 200 = 4 \times 10000 = 40000$

$5000 \times 5000 = 25 \times 1000000 = 25000000$

$30 \times 30 = \text{-----} = \text{-----}$

$70 \times 70 = \text{-----} = \text{-----}$

$400 \times 400 = \text{-----} = \text{-----}$

$3000 \times 3000 = \text{-----} = \text{-----}$

7. Speed Math - 1

- 1) Measure the length of the line given below.



- 2) Guess and write the measure of the length and breadth of your classroom.

Measure them (in metre)

Guess	Length	Breadth

In measuring	Length	Breadth

- 3) What is the distance to your school from your home?

- 4) Anitha, Aneesh, Suneesh, Sunitha in 7B participated in the 200 metre running race. Sunitha got first prize. Aneesh in the second place, Suneesh in the third and Anitha in the fourth. Arrange their names as the order of their speed.

- 5) What is the most suitable mode to travel the following distances? Choose the correct answer from the brackets.

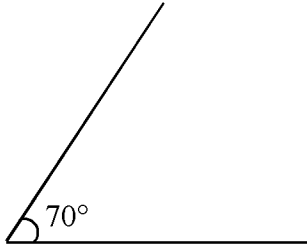
(Walk, Bicycle, Autorikshaw, Train, Bus)

- 1) 2 km
 - 2) 6 km
 - 3) 500 km
 - 4) 12 km
 - 5) 60 km
 - 6) 750 km
- 6) Subair travelled 30 kilometers in 3 hours in his bicycle. How far will he travel in one hour at the same speed?
- 7) Raju takes 15 minutes to walk one kilometre. How far did he walk in one hour at the same speed?

8. Drawing triangles - 1

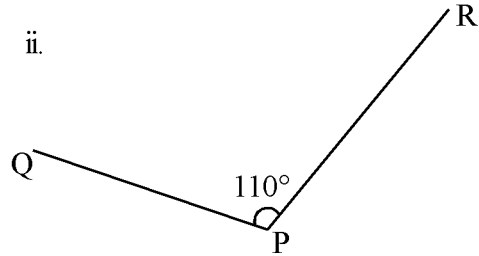
See the figure. Answer the questions given below:

i.



Angle measure =

ii.



Name of the angle =

Angle measure =

2. Draw the angles with the given measures.

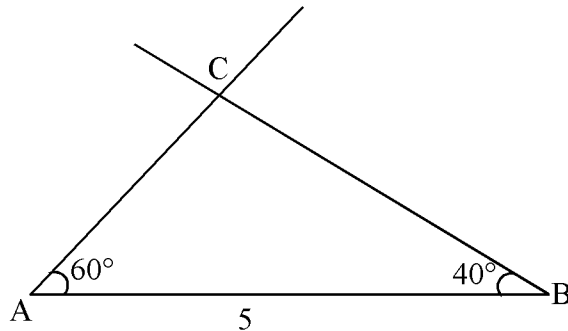
i. $\angle ABC = 45^\circ$

ii. $\angle XYZ = 60^\circ$

iii. $\angle PQR = 105^\circ$

Drawing triangles - 2

1. Draw a line AB of length 5 centimetres. Draw line AC with $\angle BAC = 60^\circ$. Draw BC with $\angle ABC = 40^\circ$. (C is the point of intersection of the lines AC and BC.)

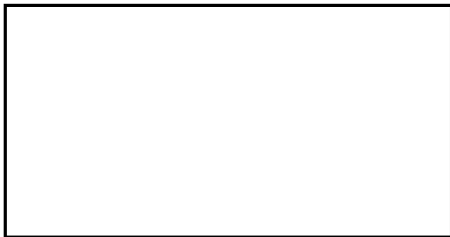


2. Draw a square ABCD of side 4 centimetres.

Draw a line joining the points B and D. Measure and write all angles in the figure.

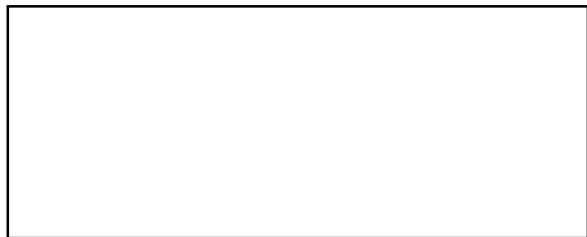
9. Ratio - 1

See the rectangles.



8 cm

Rectangle 1



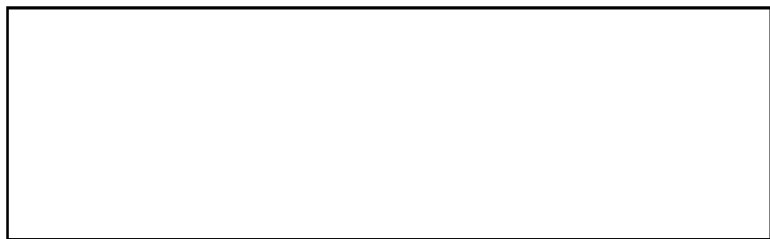
9 cm

Rectangle 2

- Length of the first rectangle.
- Breadth of the first rectangle.
- Relation between length and breadth:
- Length is twice the breadth .
- Breadth is 4 centimetres less than the length.
- Breadth is half the length, .

- Length of the second rectangle
- Breadth of the second rectangle
- Relation between length and width:
-
-
-
-

- Write the relation between the length and breadth of this rectangle in different ways.



12 cm



Ratio - 2

- What is the smallest natural number to be multiplied by each fraction given below to get a natural number?

e.g. • $\frac{1}{2} \rightarrow \frac{1}{2} \times 2 = 1$

• $\frac{6}{8} \rightarrow \frac{6}{8} \times 4 = 3$

• $\frac{3}{8} \rightarrow \frac{3}{8} \times 8 = 3$

• $\frac{5}{6} \rightarrow$ -----

• $\frac{7}{9} \rightarrow$ -----

• $\frac{12}{13} \rightarrow$ -----

• $\frac{4}{10} \rightarrow$ -----

- Multiply both the fractions in each pair by the same number to get a natural number.

• $\frac{1}{2}; \frac{1}{3}$ $\frac{1}{2} \times 6 = 3$ $\frac{1}{3} \times 6 = 2$

• $\frac{3}{5}; \frac{7}{10}$ $\frac{3}{5} \times 10 = 6$ $\frac{7}{10} \times 10 = 7$

• $\frac{2}{5}; \frac{3}{7}$ ----- -----

• $\frac{3}{4}; \frac{2}{3}$ ----- -----

• $\frac{5}{8}; \frac{3}{4}$ ----- -----

• $\frac{7}{10}; \frac{13}{20}$ ----- -----

- What is the largest number by which we can divide both the numbers in each pair?

• 10, 12 ----- • 20, 24 ----- • 30, 60 -----

• 24, 48 ----- • 13, 23 ----- • 15, 3 -----

10. Money Math - 1

1. Complete the table:

Item	Cost Price	Extra expense	Selling Price	Excess Amount got
Cucumber	200 rupees	50 rupees	350 rupees	
Snake-guard	180 rupees	40 rupees	300 rupees	
Yam	250 rupees	60 rupees	400 rupees	
Bitter guard	500 rupees	80 rupees		120 rupees
Beans		50 rupees	600 rupees	150 rupees

2. A furniture shop manufacturing tables. For manufacturing a table the expenditures are given the following table. The selling price of a table is 20,000 rupees.

Expenditure	Amount
Cost of timber	8000 rupees
Charges in the timber mill	3000 rupees
Labour charges	7600 rupees
Polish charges	800 rupees
Other expenses	1200 rupees

Observe the table and say whether it is profitable or not?

Money Math - 2

- Misha's father and mother together will get 42000 rupees for a month as their wages. There are 6 members in her family. Their expenditure for various items in a month are given in the table below. They decided to deposit 5,000 rupees per month in the Education Nidhi for Misha and her brother.

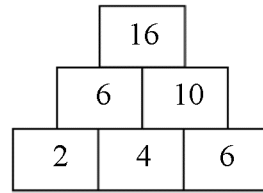
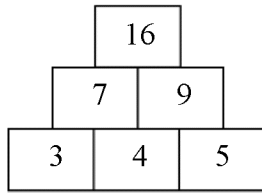
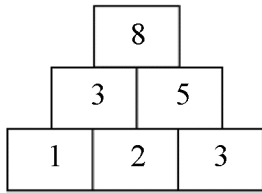
Now, help her parents to re-arrange their family expenses.

(Expenditure for a month of 30 days is mentioned in the table.)

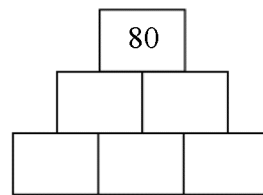
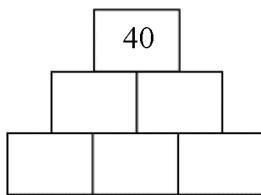
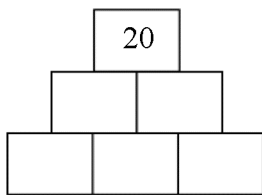
Item	Amount of Expenditure	Amount to be adjusted
Grocery	5400	
Vegetables	2700	
Milk, egg	2400	
Medicine	4000	
Electricity	1900	
Education	3200	
Newspaper, TV	600	
Travel	3000	
Gas/Fuel	1200	
Mobile	2000	
Loan payment	6000	
Savings	2400	
Others	7200	

11. Numbers and Algebra - 1

- See the number pyramids given below.

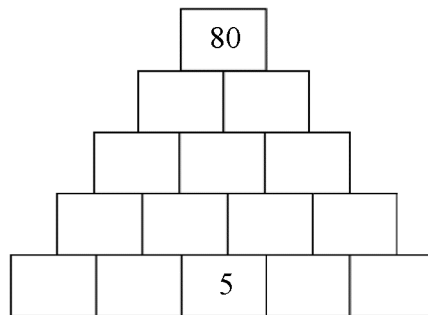
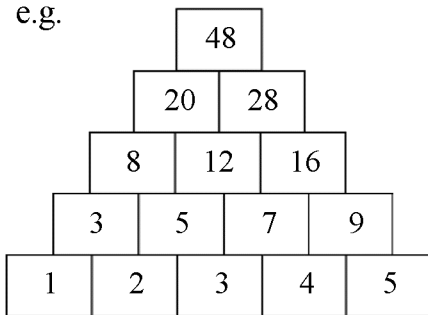


Fill in the number pyramids so as to get the topmost number indicated.

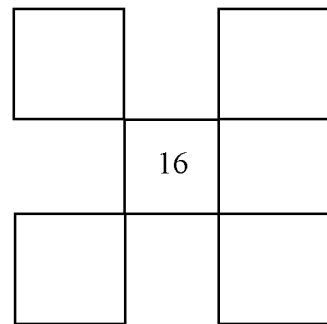
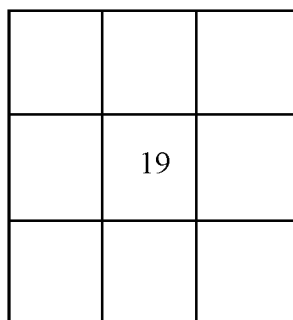
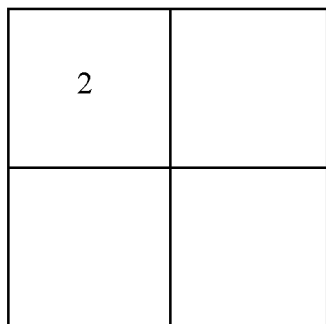


- Complete the number pyramid.

e.g.



- The columns in a calendar are



Complete all the columns.

Numbers and Algebra - 2

- See the number patterns. Write the missing number.

- Sequence of odd numbers.

1, 3, 5, 7, 9, _____, _____, _____

- Sequence of even numbers.

2, 4, 6, 8, 10, _____, _____, _____

- Sequence of square numbers.

1, 4, 9, 16, 25, _____, _____, _____

- Sequence obtained by adding 4 repeatedly to 2.

2, 6, 10, 14, 18, _____, _____, _____

- Sequence obtained by adding 7 repeatedly to 5.

5, 12, 19, 26, _____, _____, _____, _____

- Sequence obtained by adding 12 repeatedly to 10.

10, 22, _____, _____, _____, _____, _____, _____

- Sequence obtained by adding 10 repeatedly to 12.

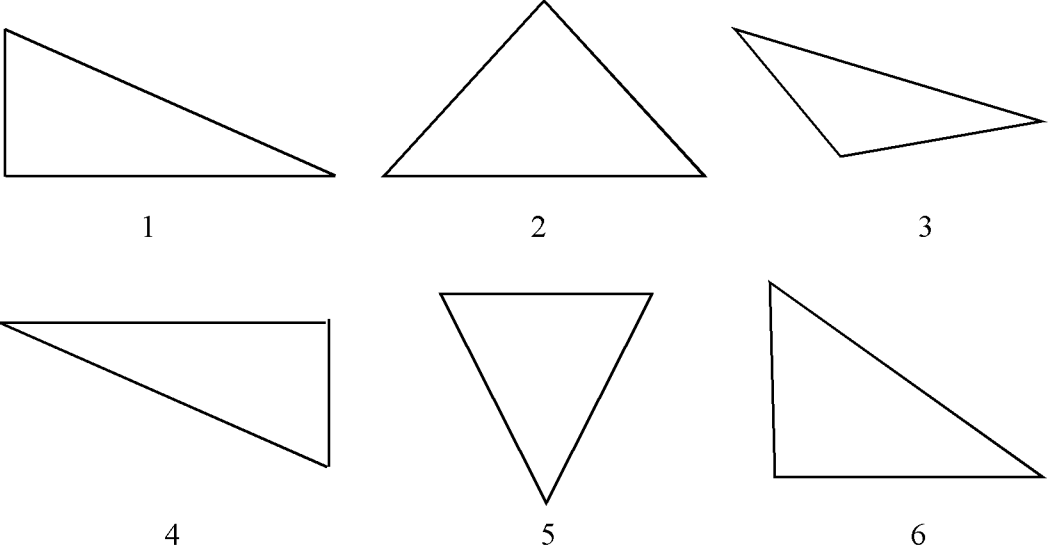
12, _____, _____, _____, _____, _____, _____, _____

- If we write the sequence obtained by adding 20 repeatedly to 10 upto 250, whether 200 belongs to this sequence?

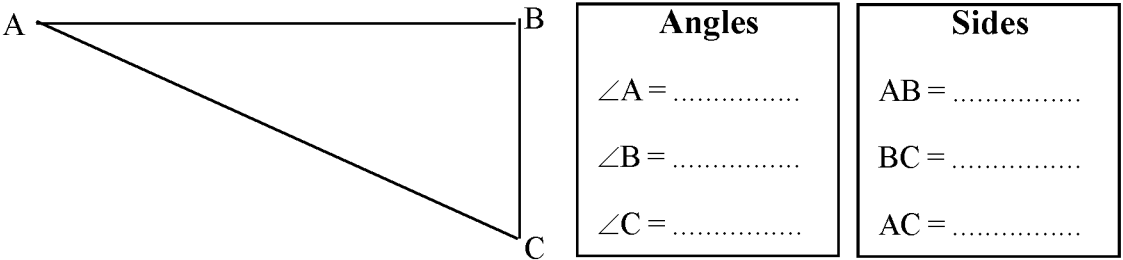
12. Squares and Right Triangles - 1

- Observe the triangles.

Mark (✓) triangles having one angle 90° .



- Measure and write the sides and angles of this right triangle.

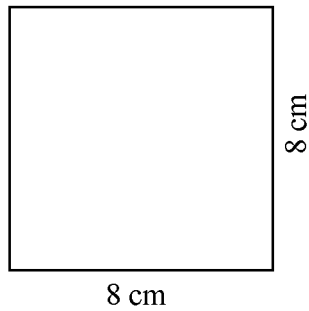


- Draw a right triangle of your choice.

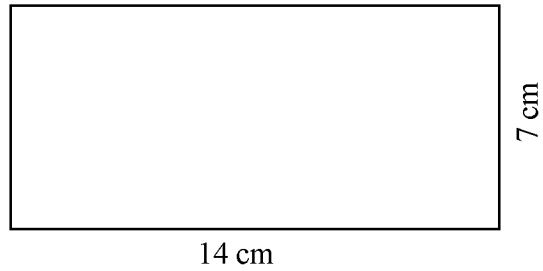
- Is it possible to draw a right triangle with all sides equal?

Squares and Right Triangles - 2

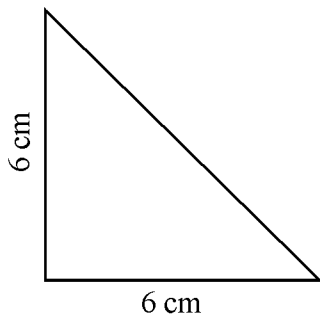
- Find the areas of the following figures.



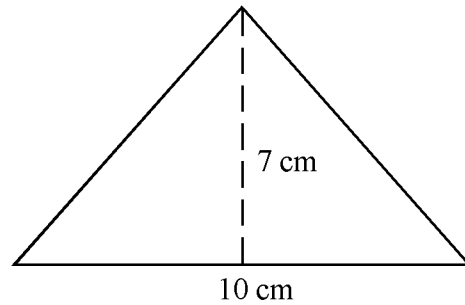
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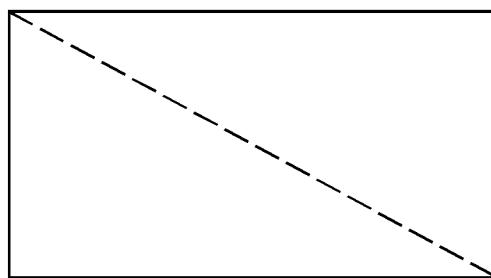


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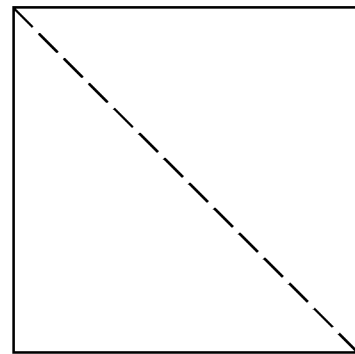


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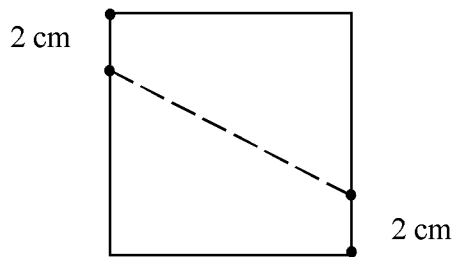
- Draw the following figures in thick paper. Cut it through the dotted line. Place one part above the other. What is your observation?



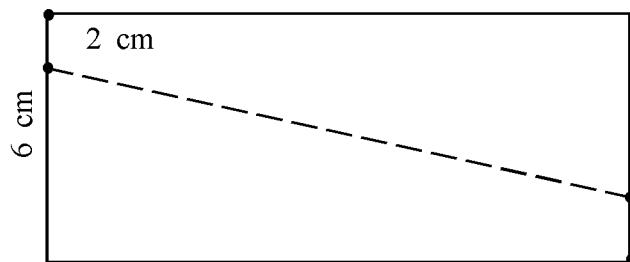
Rectangle



Square



Square



Rectangle

13. New numbers - 1

1. The number 5 more than 10 =
2. The number 5 less than 10 =
3. The number 10 more than 10 =
4. The number 10 less than 10 =
5. The number 15 more than 10 =

New numbers - 2

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20

Zero

It is a game for two friends. Choose a number between 50 and 100. Let the number selected be 60. Toss to select the first friend to start. Choose a number from the table and subtract it from 60.

- Then the second person can select the number from the table and subtract from this result.
- Continue the subtraction, the person who reaches 0 first is the winner.

Instructions:

- Use the number in the table once.
- If A subtracts first, then B can continue.
- Note the calculations in the notebook.

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