



Class- V

Subject: MATHS

Chapter-2: SHAPES AND ANGLES

TEXTUAL QUESTIONS AND ANSWERS:

KEY-POINTS:

- **Closed figures/shapes:** Figures or shapes which start and end at the same point.

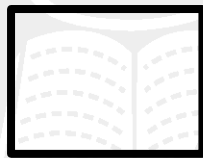


Figure: Closed figure

- **Open figures/shapes:** Open figures are those figures or shapes which do not start and end at the same point.

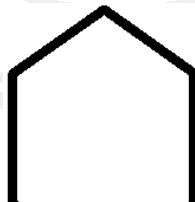


Figure: Closed figure

- **Angle:** An angle is a geometrical figure formed by two line segments meeting at one common point called vertex.

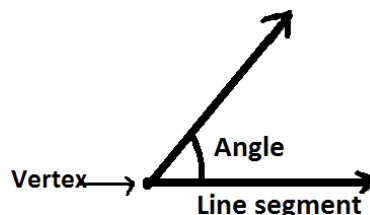
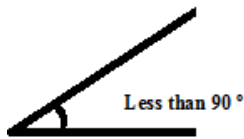
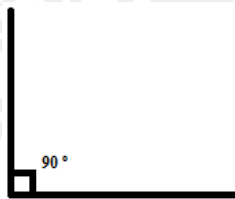


Figure: Angle making

- Different angle will give different shapes.
- **Acute angle:** An angle less than 90° .



- **Right angle:** An angle that is exactly 90° .



- **Obtuse Angle:** An angle between 90° and 180° .



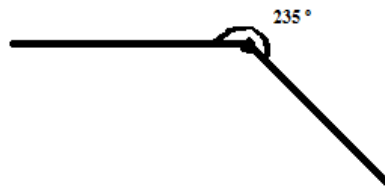
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180°



- **Straight angle:** An angle which is equal to the two right angles i.e. 180° .

- **Reflex angle:** An angle between 180° and 360° .



- **Full or complete angle:** An angle that is exactly 360° .



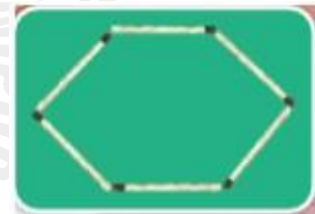
Q1. Rohini made this shape.

Mohini: Is it a closed shape or an open shape?

Rohini: It is a closed shape.

Mohini: How many sides are there?

Rohini: It has 6 sides.



Q2. Mohini made this.

Now you give the answers.



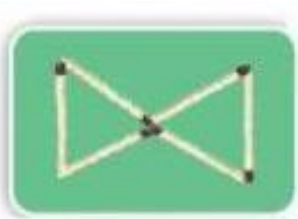
(a) Is it a closed shape?

Ans. Yes, it is a closed shape.

(b) Does it have 6 sides?

Ans. Yes, it has six sides.

But it is not the same as the one made by Rohini. So Mohini tried again.



Q3. This is what she made.

(a) Is it a closed shape with 6 sides?

Ans. Yes, it is a closed with 6 sides.

(b) Is it the same as one made by Rohini?

Ans. No, it is not the same as one made by Rohini.

(c) Is there some way to say in what way these shapes are different?

Ans. These shapes differ in angles.

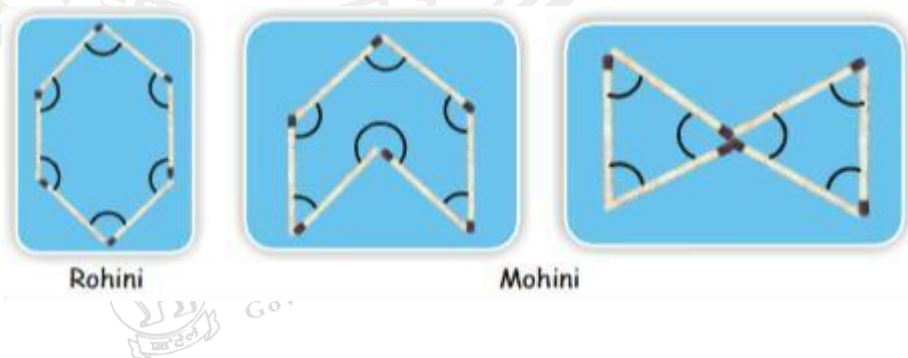
(d) Mohini tried again but got different shapes.

Guess and make two more shapes Mohini could have made.

Ans. Mohini could make following shapes.

Q4. Look at the angles marked in these shapes.

Can you see the difference?



Ans: By seeing the shapes/figures, we can say that each figure/shape has different shapes and different angles.

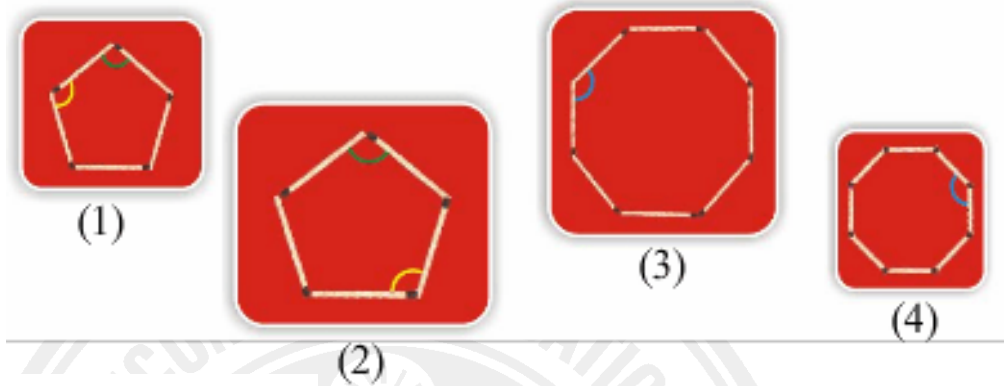
Q5. Look at the shape and answer.



The angle marked in—colour is the biggest angle.

Ans: The angle marked in black in colour is the biggest.

Q6.



(a) Are the angles marked with yellow equal?

Ans: Yes, the angles marked with yellow are equal.

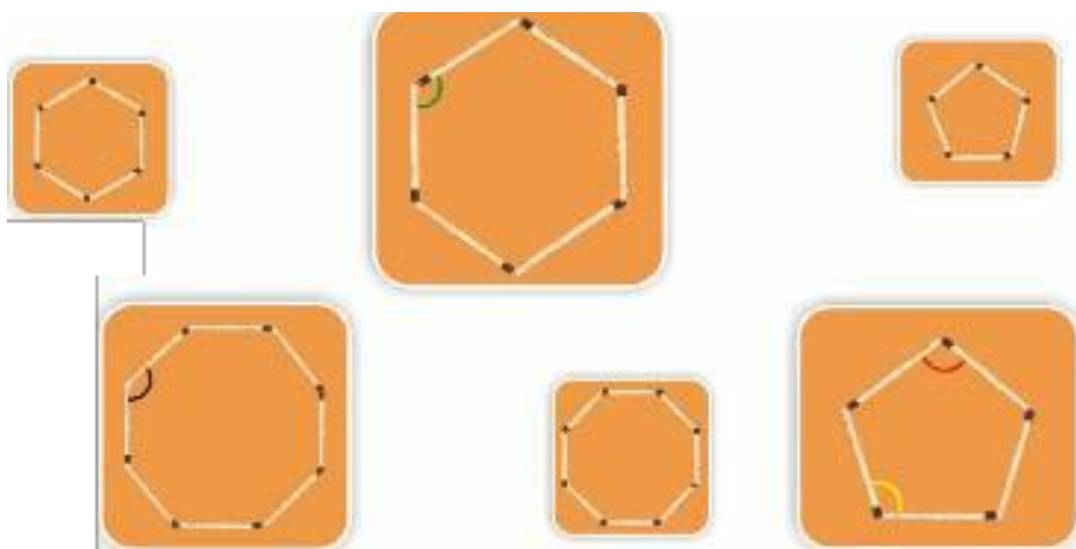
(b) Are the angles marked with green equal?

Ans: Yes, the angles marked with green are equal.

(c) Are the angles marked with blue equal?

Ans: Yes, the angles marked with blue are equal.

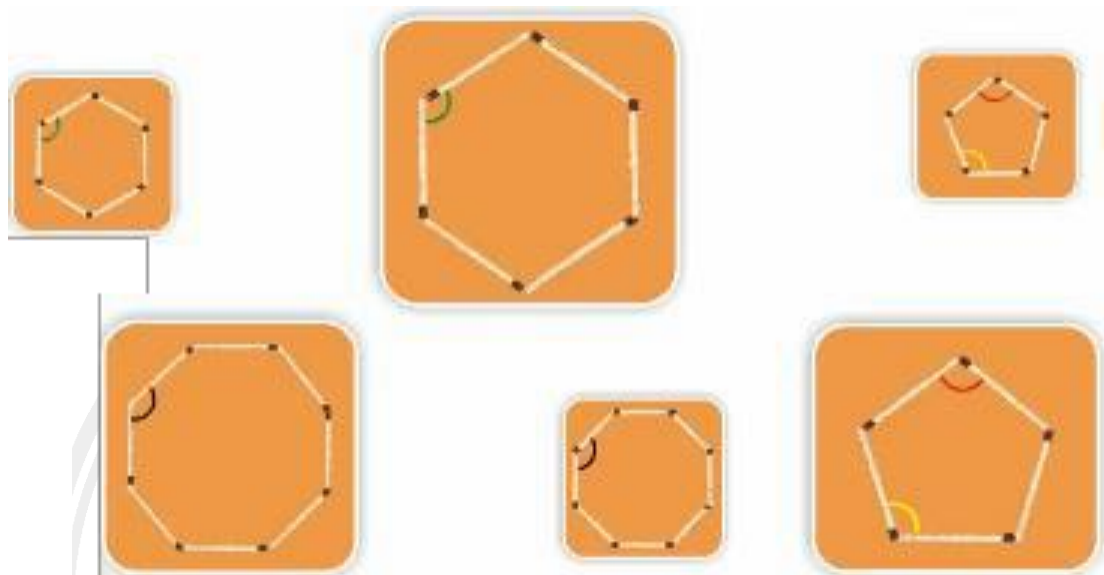
Q7. Four different angles are marked in four colors. Can you find other angles which are the same as the one marked in red? Mark them in red. Do this for other colors.



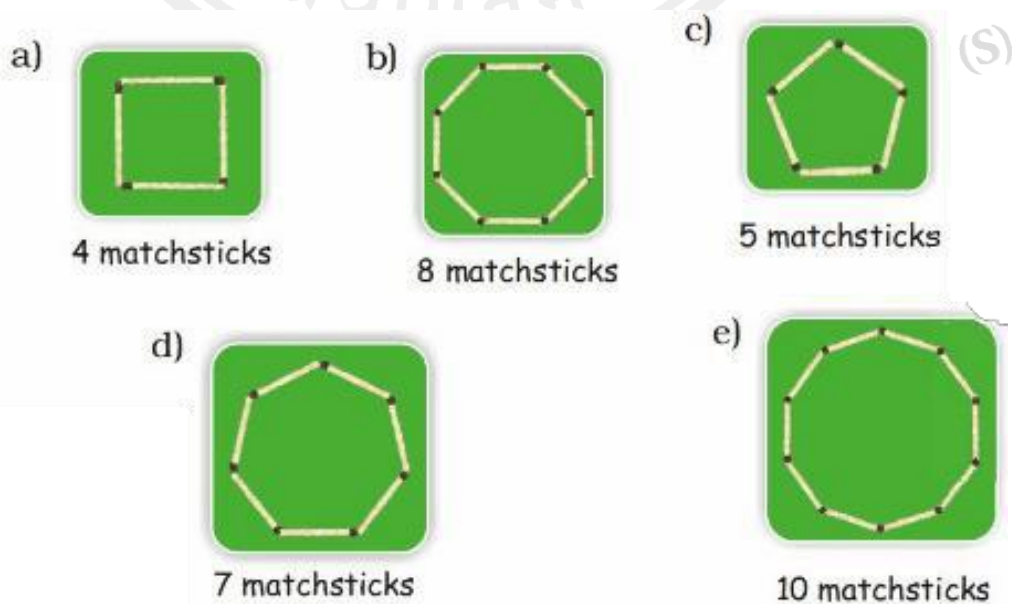
Ans. The angle marked in yellow is same as the one marked in red.

All angles of the hexagon are same as the angle marked in green.

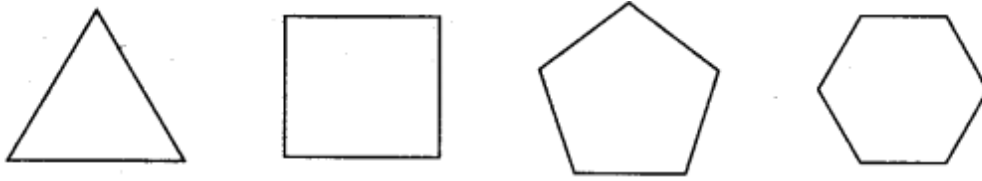
All angles of the octagon are same as the angle marked in black.



Q8. How many different shapes can you make by changing the angle between the matchsticks in each of these? Try.



Ans: Following shapes can be made by changing angles.



We can increase the number of matchsticks to make more shapes.

Hint: Students are advised to prepare the answer on their own.

Q9. Matchstick Puzzles

(a). Makes 8 triangles using 6 matchsticks. Try!



Ans.

(b). Takes 8 matchsticks and make a fish like this. Now pick up any 3 matchsticks and put them in such a way that the fish now starts swimming in the opposite direction. Did it?

Ans.



(c).Using 10 matchsticks make this shape. Pick any 5 matchsticks and put them in such a way that you get the shape of a house.

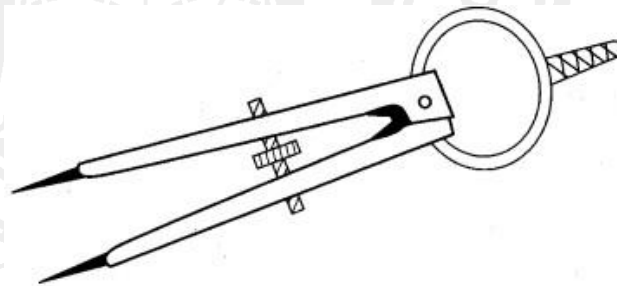


Ans.

Q10.Angle Tester

(a).How do we make equal angles?

Ans. We can use the divider from the geometry box to make equal angles. Measure an angle with the help of the divider and make another angle of equal measurement. The divider is also called the angle tester.



(b).How can you make your own angle tester?

Ans. For this, we need following materials;
cardboard strips, drawing pins or split pin. We take two cardboard strips of same size and join their one ends with the help of the drawing pin or split pin. Then we move the strips from joint so that they can freely rotate. Finally angle tester is ready.



Q11. Go around with your tester and draw here those things in which the tester opens like the letter L. Are you sure they are all right angles?








Ans:

Hint: The purpose of this section is to make students observe their surroundings. The students prepare the answer on their own.

Q12. Look at the angles in the pictures and fill the table

Angle	Right angle	More than a right angle	Less than a right angle
			✓

Ans.

Angle	Right angle	More than a right angle	Less than a right angle
			✓
	✓		
	✓		
		✓	
		✓	

Q13. Sukhman made this picture with so many angles.

Use colour pencils to mark.

- Right angles with black colour.
- Angles which are more than a right angle with green.
- Angles which are less than a right angle with blue.



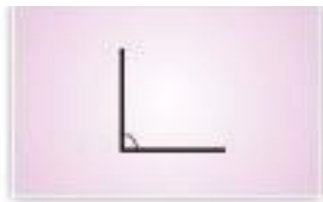
Ans:



Q14. Draw anything of your choice around the angle shown. Also write what kind of angle it is. The first one is done.



Less than a right angle



Ans:



A right angle



A right angle



More than a right angle



Less than a right angle



Less than a right angle

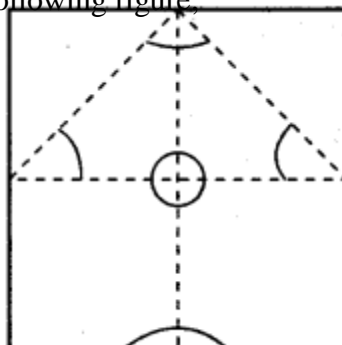
Q15. Activity

- (a) Take a square sheet of paper.
- (b) Fold it in half.
- (c) Fold it once more and press it.
- (d) Open the last fold so that the sheet is folded in half.
- (e) Take one corner and fold it to meet the dotted line.

On the paper you will find lines making a right angle, an angle less than a right angle and an angle more than a right angle.

Look for each of the angles and mark them with different colours.

Ans. Angles are marked in the following figure:



Q16.Activity: Angles with your body Can you make these angles?

(a)A right angle with your hand?

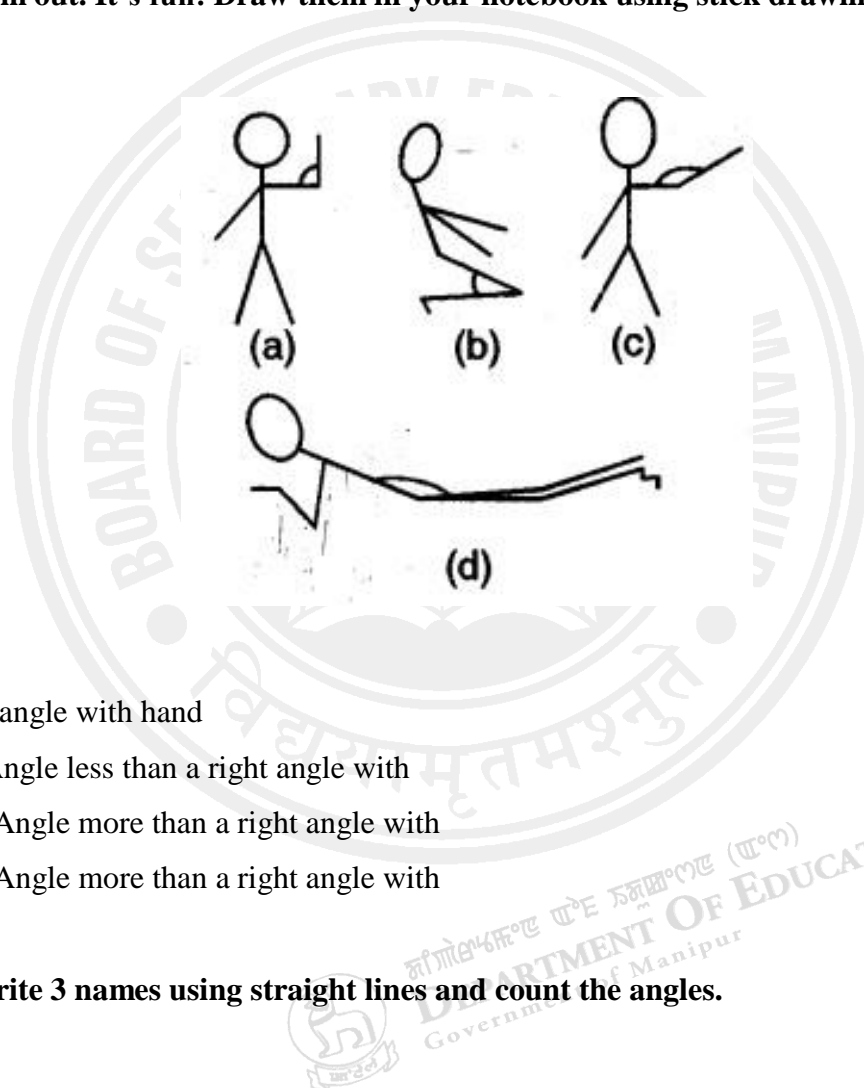
(b)An angle less than a right angle with your leg?

(c)An angle more than a right angle with your arm?

(d)An angle more than a right angle with your body?

Try them out. It's fun! Draw them in your notebook using stick drawings like these.

Ans:



(a) ight angle with hand

(b) Angle less than a right angle with

legs (c)Angle more than a right angle with

arm (d)Angle more than a right angle with

body

Q17.Write 3 names using straight lines and count the angles.

Name	Number of right angles	Number of angles more than a right angle	Number of angles less than a right angle

Ans.

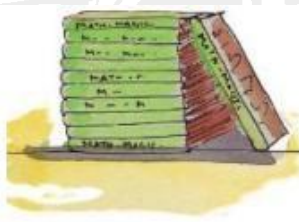
Name	Number of right angles	Number of angles more than a right angle	Number of angles less than a right angle
M A Y A N K	1	8	12
A K A S H	5	4	8
K A L A M	2	4	11

Q18.Activity

(a)Put 10 Math-Magic books on top of each other. Keep one book slanting to make a slide.

(b)Now do this with six books.

- Roll a ball from the top. From which slide does the ball roll down faster?
- Which slide has the smaller angle?



Ans. The ball rolls down faster, from the slide made by 10 books.

The slide made by 6 books has smaller angle.

Q19.These are two slides in a park.

- Which slide has a larger angle?
- Which slide do you think is safer for the little boy? Why?



Ans: The slide (1) on the left side has larger angle.

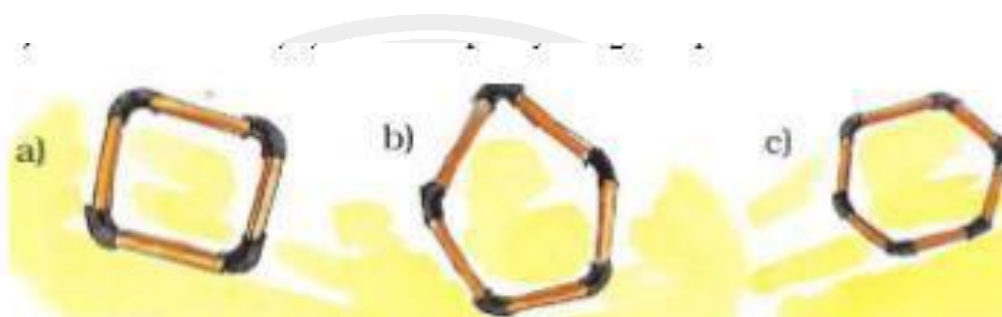
The slide on the right side (2) of the boy is safer for the little boys because its angle is smaller than the other slide.

Q20.Changing Shapes

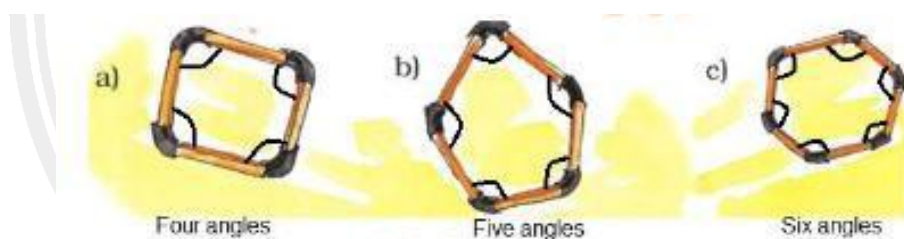
Now make these 4, 5, 6 sided shapes by using tube pieces and matchsticks.

Find out how many angles are there in each of these shapes. Mark them.





Now push each shape downwards with the tip of your finger. Does the angle change when pushed down by the finger? Find out and write your results in the table given:



Ans.



When a shape is pushed downwards by the finger, the angles Eire shown in the following table:

Shape	Change in angle Yes/no
	Yes
	Yes
	Yes
	No

Q21.Shapes and Towers

- From the activity ‘Changing Shapes’ can you guess why triangles are used in these towers, bridges, etc.?
- Look around and find out more places where triangles are used. (see text figure page-28)



Ans. A triangular shape is strong and does not change easily when pressed. Triangular shapes are used in bridges, towers, etc. to make them stronger.

- Triangles can be found in following structures:
Railings, Bus stops, railway stations, community halls, etc.

Q22. Angle and Time

There are many times 4 in a day when the hands of a clock make a right angle. Now you draw some more.



Ans.



Q23. Write what kind of angle is made by the hands at these times.

Also write the time.



Ans:



7:25

Less than
right angle



8:15

More than
right angle



9:10

More than
right angle



9:25

More than
right angle



10:00

Less than
right angle

Q24. Draw the hands of the clock when they make an angle which is less than a right angle. Also write the time.



Ans: Following times show angles less than a right angle.



Q25.Degree Clock

Use your degree clock to measure the right angle of your pencil box.

Ans. 90° is the measure of the right angle.

Can you guess how many degrees is the angle which is:

- (a) $1/2$ of a right angle
- (b) $1/3$ of a right angle
- (c) 2 times of a right angle

Ans:

We know that 1 right angle = 90°

$$(a) \frac{1}{2} \text{ of a right angle} = \frac{1}{2} \times 90^\circ$$

$$= 45^\circ$$

$$(b) \frac{1}{3} \text{ of a right angle} = \frac{1}{3} \times 90^\circ$$

$$= 30^\circ$$

$$(c) 2 \text{ times a right angle} = 2 \times 90^\circ$$

$$= 180^\circ$$

Q26. Measure the angles from where Kittu should hit the striker (see text page 30).

Ans: The measure of the angle from where Kittu should hit the striker is 30° .

Q27..Find the angle of 45° and 90° when you open your plane.

Ans: For this, make a paper airplane and measure the angles at different folds.

Q28. Angles With Yoga

Rahmat is doing yoga. These are the pictures of different 'Asanas' he does everyday.



Estimate the measure as many angles as you can made by different parts of the body while doing 'Asanas'

Ans:

	<i>Angle between body parts</i>	<i>Measurement of angle</i>
(a)	Thigh and abdomen	90°
(b)	Thigh and abdomen	Less than 90°
(c)	Arm and hand	More than 90°
(d)	Thigh and leg	More than 90°

