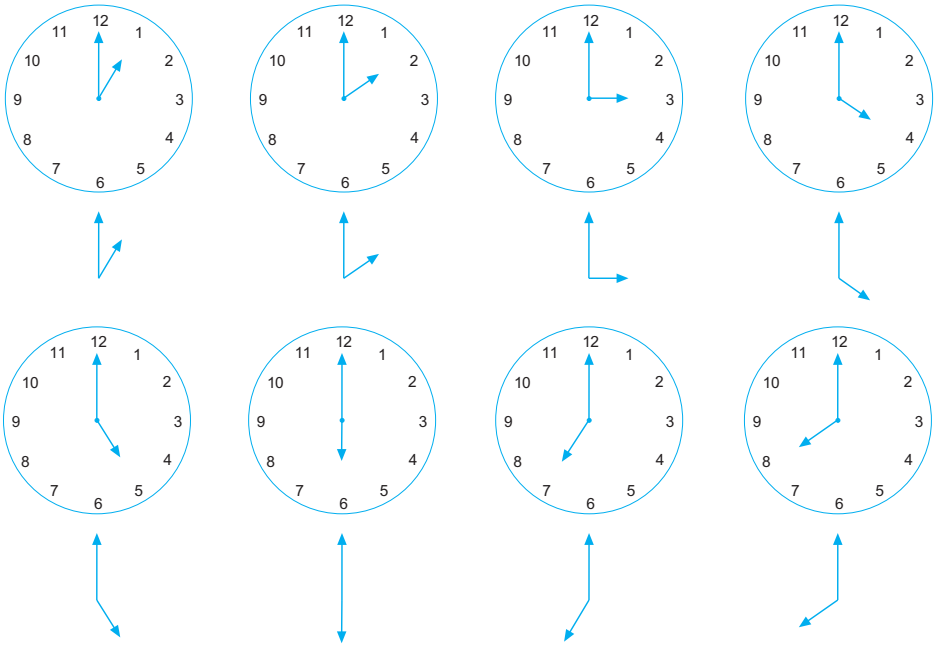
07 - ANGLES

Consider the positions of the hour hand and the minute hand of a clock from 1.00 p.m. to 8.00 p.m.



We see that the positions of the hour hand and the minute hand are different.

Activity 7.1

Take two pieces of ekel, place two ends together and other ends in different ways. Different positions are shown below in diagram 7.1. Draw them in your exercise book.

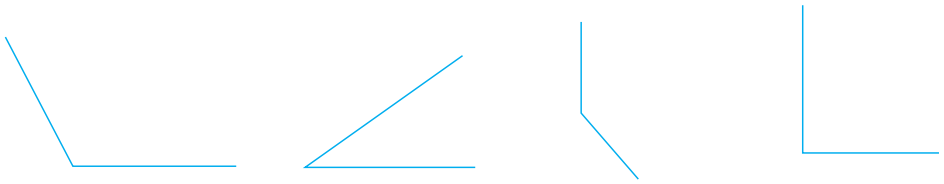


Figure 7.1

An angle is formed when two straight lines meet as shown below.

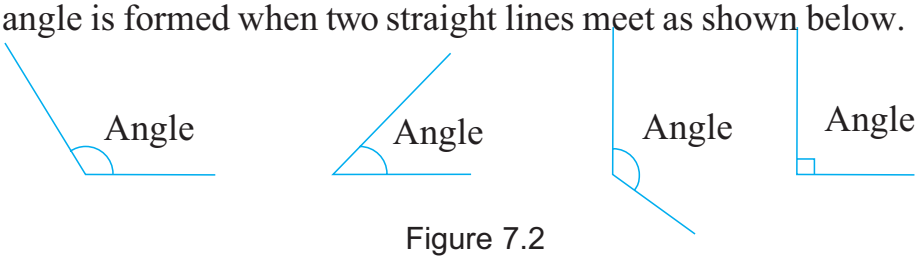


Figure 7.2

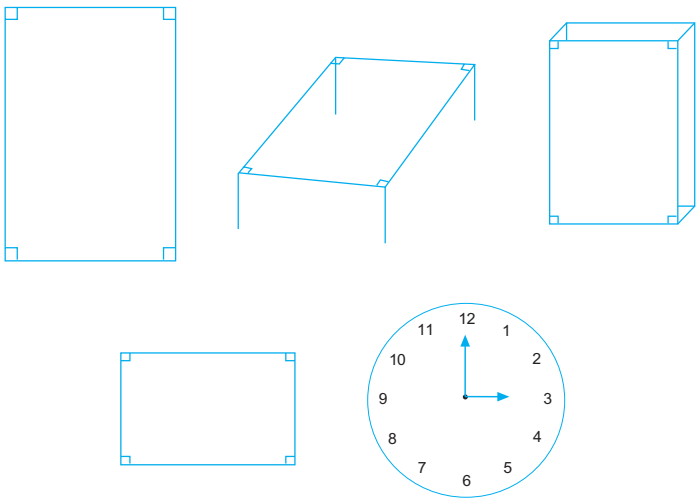
Assignment 1 Name the situations you see in the environment where angles are formed.
E.g.: Angle formed by rods in an antenna.

Activity 7.2

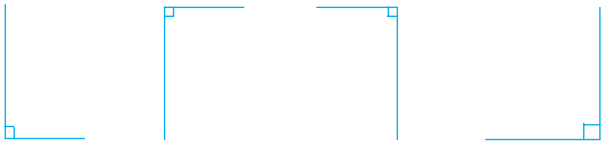
Look carefully at the four corners of the ruler, four corners of the door. Draw these pictures in your exercise book.

Draw the positions of the hour hand and the minute hand of a clock when the time is 3 o'clock and 9 o'clock. Mark the angles in the pictures.

Observe the picture below.



The marked angles you see above take the shape drawn below.

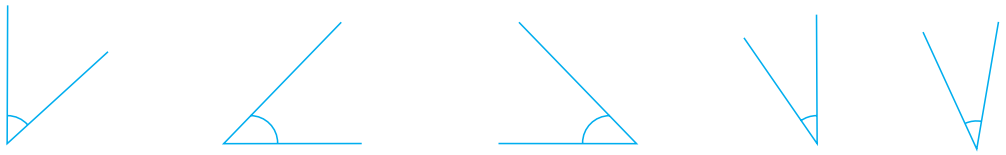


This shape is named as a right angle.

The angles that we come across in the environment are not right angles always. This is clear when we look at the angles made by the hour hand and the minute hand at 2 o'clock or 4 o'clock. Let us see how we can name angles other than the right angle.

Activity 7.3

Take 2 ekels and place two ends together and move the other ends in different positions. Observe and draw them in your exercise book.

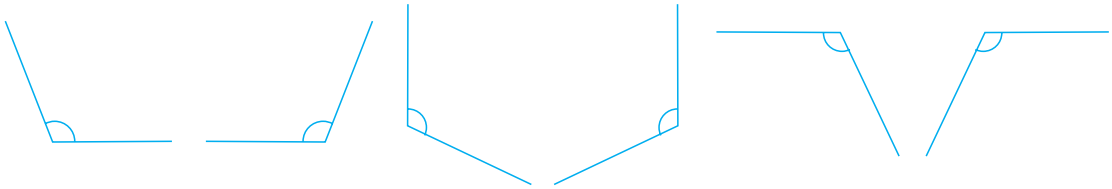


You would notice that each of the above angles is smaller than a right angle.

Angles smaller than a right angle are acute angles.

Activity 7.4

Take 2 ekels and place them as shown below. Observe them and draw them in your exercise book.

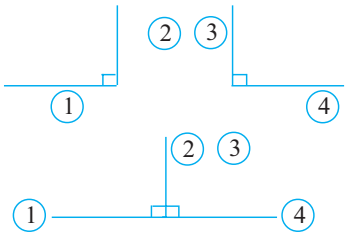


You will note that each of the angles obtained in this manner is greater than a right angle.

Angles greater than a right angle but less than two right angles are obtuse angles.

Activity 7.5

Now take 4 pieces of ekel and make two right angles as shown below

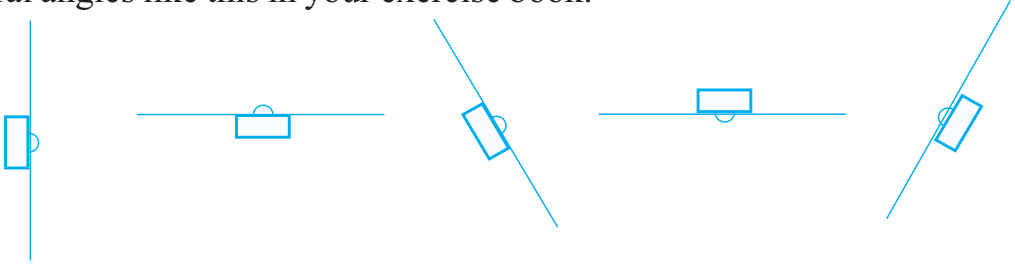


Now place ekels 2 and 3 together as shown below.

The ekels 1 and 4 lie on the same straight line. Remove ekels 2 and 3.

Then you will get an angle like the one seen here.

This angle is equal to two right angles.
Draw several angles like this in your exercise book.

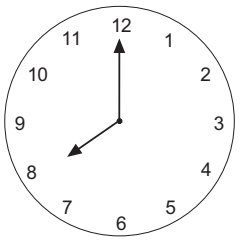


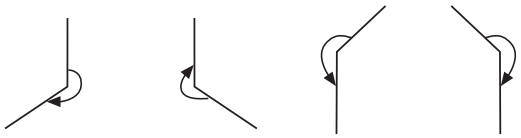
If the two arms of an angle form one straight line the angle is called a straight angle.

Activity 7.6

Observe the directions shown by the hour hand and the minute hand of the clock shown below. Draw this diagram in your exercise book.

Now place two ekels as shown below. Observe the positions and draw them in your exercise book.



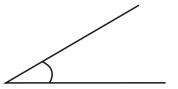
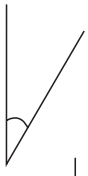
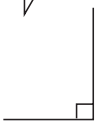
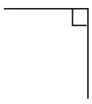
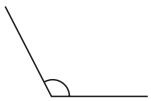


You will note that each angles shown here are greater than a straight angle.

Angles greater than a straight angle are reflex angles.

Activity 7.7

Complete the table given below.

Angle	Whether the angle is acute/obtuse/right/straight/reflex
	.....
	.....
	.....
	.....
	.....

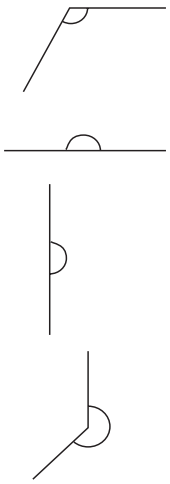
Angle	Whether the angle is acute/obtuse/ right/straight/reflex
	.....

Table no. 7.1

Exercise 7.1

01. Copy the table given below and fill in the last column.

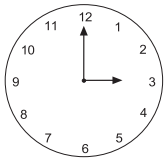
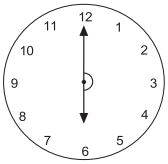
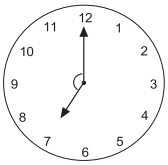
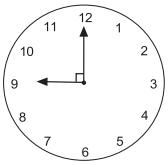
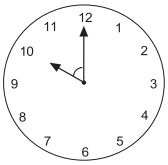
Time	Positions of the hands in the clock	Type of the angle formed
3.00 p.m		.....
6.00 p.m		.....
7.00 p.m		.....
9.00 p.m.		.....
10.00 p.m		.....

Table No 7.2

02. Draw two figures for each.

i. Acute angle ii. Right angle iii. Obtuse angle

iv. Straight angle v. Reflex angle

03. Rewrite and fill in the blanks with less than/ greater than.

i. An acute angle is an angle .....a right angle.

ii. An obtuse angle is an angle greater than a right angle but ..... than a straight angle.

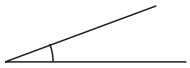
iii. A reflex angle is an angle ..... a straight angle.

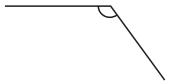
Assignment 2

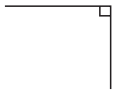
Draw diagrams to show how the hour hand of a clock moves from 12.00 noon and complete a full turn (rotation). Draw angles for each hour. Note the type of angle formed by the hour hand and the minute hand.

Additional exercises

1. State the type of angle in the blank space given in front of each angle.

i.  .....

ii.  .....

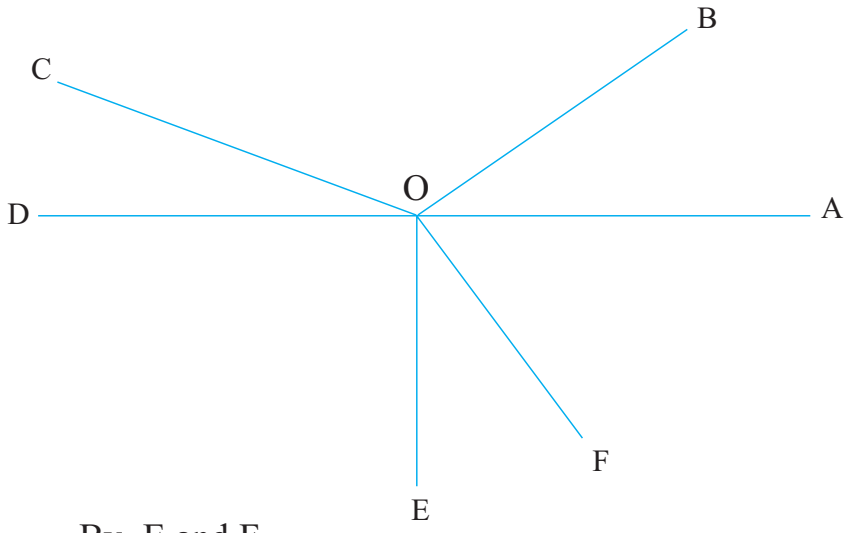
iii.  .....

iv.  .....

v.  .....

vi. .....

2. The diagram shows six straight lines converging at the point 'O'.
State the type of angle formed at 'O' by diffrent lines.



i. By E and F .....

ii. By A and E .....

iii. By A and D .....

iv. By A and C .....

v. By E and B .....

vi. By E and C .....

vii. By C and F .....