



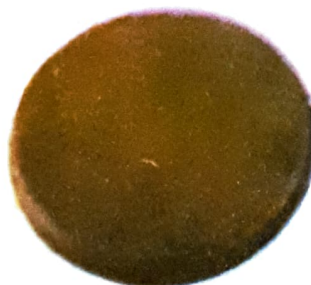
YJT2RZ



Bangle



Coin



Roller board



Plate

Teacher – Look at the pictures of the objects given above and tell how do their edges look like?

Prakash – They appear round.

Teacher – No, they appear round but the edges of these objects are circular. Objects that look like a ball are called round in shape. Now you tell me some other objects which are circular in shape—

Meena – Tyre, bangle, chapati, pan —————

Parts of a circle

Teacher – All the children go and stand on the school playground. Deepu, hold one end of the rope and stand in the middle of the playground. Mumtaz hold the another end of the rope and go as far as you can from Deepu.



Deepu – Holding one end of the rope I am standing here.

Mumtaz – Holding other end of the rope, I have reached at the maximum distance from Deepu.

Teacher – Peter, you mark the track followed by Mumtaz using lime powder.

Teacher should clarify the difference between circular and spherical objects with the help of real objects



Peter – Okay! Madam.

Teacher – Mumtaz, Now move around Deepu with the tightly pulled rope.

Mumtaz – Yes, Madam.

Teacher – Children! what shape is formed after Peter marked the track with lime powder.

Children – It is circular.

Teacher – Very good.



The point around which a circle is formed is called the centre of the circle.

Rajani tell, Who is standing at the centre of the circle ?

Rajani – Deepu is standing at the centre of the circle.

Teacher – Well done!

The radius of a circle is the distance from the centre point to the edge of the circle.

Navjot, tell what is the radius in this circle ?

Navjot – Madam, the radius of the circle is the length of the rope that Deepu and Mumtaz are holding.

Teacher – Very good! We observed that a circle is formed when Peter marked the track on which Mumtaz was walking.

Do you know, the circumference of this circle is the total length of the figure which is formed with lime powder. Deepu, now you hold the rope which is double in length of the previous one, exactly in the middle and stand at the place, in the centre where you were standing before. Mumtaz, now you hold one end of the rope and stand at any point of the circle.

Deepu and Mumtaz – Okay! Madam.

Teacher – Rajan, you hold the another end of the rope in opposite direction of Mumtaz and move as far as you can.

Rajan – Madam, I have reached on the circle itself.

Teacher – Yes, It should be like this.



Do you know, why did this happen ?
Because the length of the rope between Deepu and Mumtaz is the same as the length of the rope between Deepu and you.

Deepu — Yes, Madam! I am holding the rope exactly in the middle, and I am the centre.

Teacher — Absolutely right!

Thus, the whole length of the rope will be called the diameter of the circle, which is double of the radius.

In this way $\text{diameter} = 2 \text{ radius}$

A diameter is a straight line segment which joins any two points on the circle passing through the centre of the circle.

At every point where Mumtaz and Rajan will reach, keeping themselves exactly in opposite direction, the ropes will represent the diameter.

In this way we observe that there are many radii and diameters in a circle.

Teacher — Gunjan, now you go and stand on the circle marked with lime powder.

Gunjan — Yes madam, I am standing there.

Teacher — Peter, go and mark a broader point using lime powder where Gunjan is standing.

Peter — Madam, I have marked.

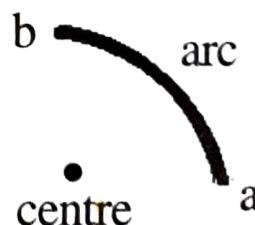
Teacher — Gunjan move a little farther on the circle and stay there.

Gunjan — Ok Madam.

Teacher — Peter, mark the point broader with lime powder where Gunjan is standing.

Peter — Yes Madam. I made it broader.

We observed that the shape which is formed, is a part of the same circle. It is called the **arc** of the circle.



Hence- An open figure which is a part or a portion of a circle is called the Arc of circle.

Drawing circular figure

Let's see —

Reshma measured the distance of 3 cm with the compass on scale. Now she placed the pointed end of the compass at point A on her notebook and rotated the pencil end around point 'A'.

Now you tell —

- Which shape is formed when Reshma rotates the pencil's end ?
- What part of the circle is called that Reshma measured with compass at 3 cm ?

Thus, we can draw the circles of different radii.



Do it yourself—

4 cm

6 cm

8 cm

Draw the circles for the following radii —



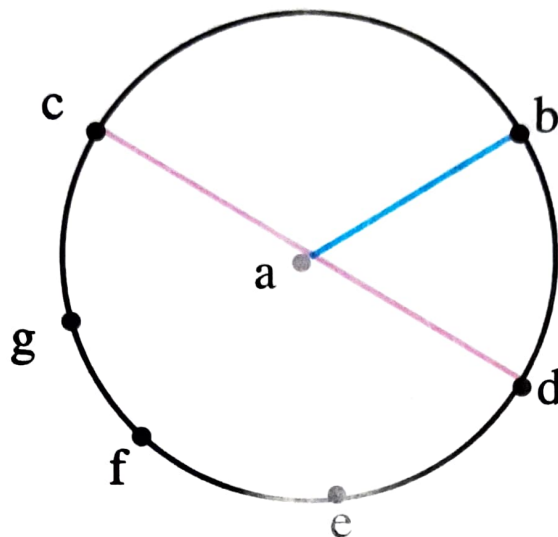
We have learnt

- The centre of a circle is the given point from which all the points on the circle are at the same distance.
- The distance between the centre and any point on the circle is called the radius of the circle.
- A diameter is a straight line segment which joins any two points on the circle passing through the centre of the circle.
- The length of the diameter of a circle is just double of its radius.
- The length of the whole round of the circle is called its circumference.
- Any small part or portion of a circle is called an arc.
- To draw a circle with the given radius and diameter.



Exercise

1. See the figure and match the column 'A' and 'B'.



A

centre

diameter

radius

arc

circumference

B

e f g

a

length of the whole round of a circle

a b

c d

2. Draw the circles of the following radii –

(a) 5 cm (b) 4.5 cm (c) 6.0 cm

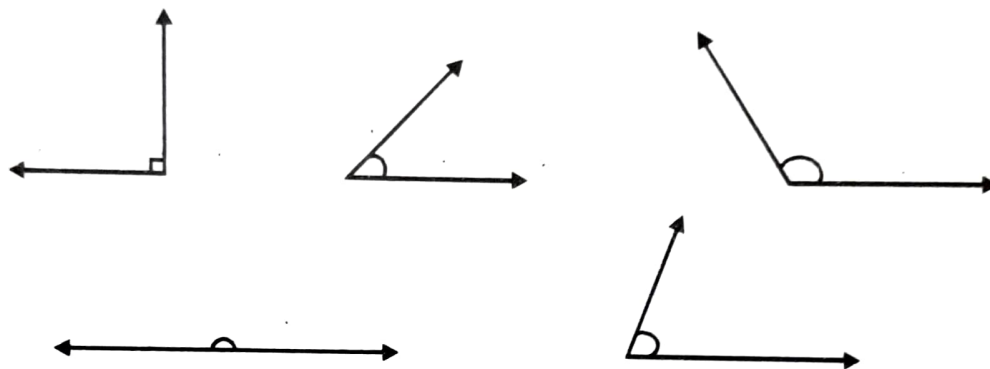
3. The length of the radius of a circle is 4 cm. Find the diameter of the circle.



How much have you learnt – 4



- The length of a ground is 140 metres and its breadth is 80 metres. How much distance will be covered to complete the three rounds of it ?
- Draw the angles of the following degrees with the help of protractor and write their names –
 (a) 15° (b) 45° (c) 60° (d) 100° (e) 120° (f) 90°
- Draw a line segment BC of 3 cm. Make an angle of 90° at point C.
- Measure the following angles, with the help of protractor and write their degrees –



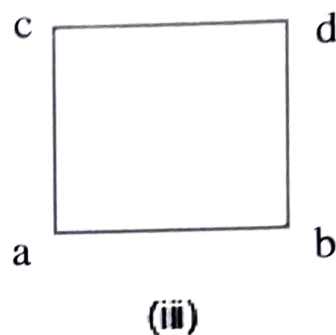
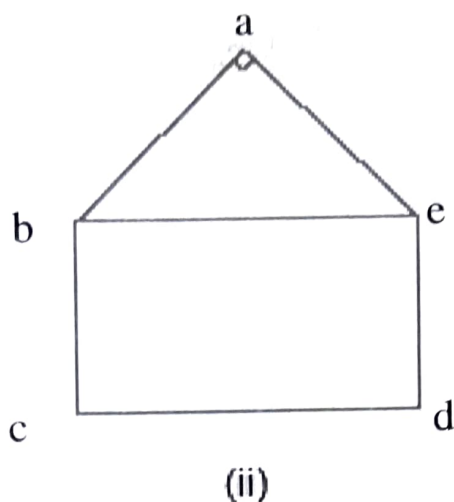
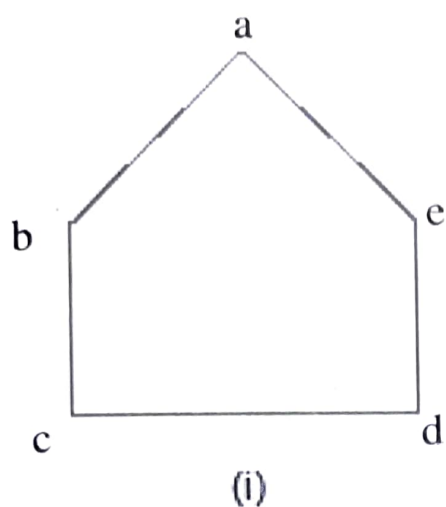
- Draw the circles of the given diameters –
 (a) 6 cm (b) 5 cm (c) 4 cm
- Prakash took a loan ₹ 13000 from a bank at interest rate 7% per annum. How much money he has to return to the bank after three years ?
- Fill the blanks in the given table –



Sr. No.	$\angle a$	$\angle b$	$\angle c$	Total
1.	50°		90°	180°
2.		70°	30°	180°
3.	75°	65°		180°
4.	110°	50°	20°	

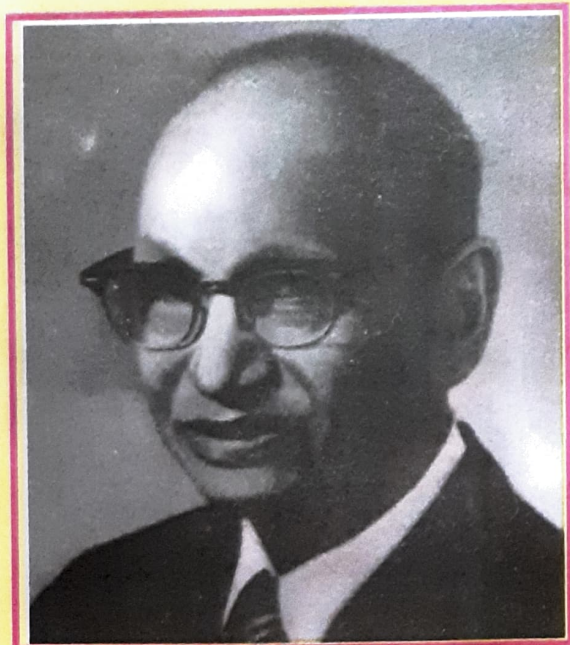


8. Measuring with protractor write the numbers of right angles in the given pictures.



Great Mathematician

Raj Chand Bose



He was an Indian American mathematician and Statistician. He was born in 1901 in Hoshangabad, Madhya Pradesh. Since his childhood he was extremely fond of Mathematics and complicated questions of Mathematics used to attract him. He also worked as a Mathematics teacher.