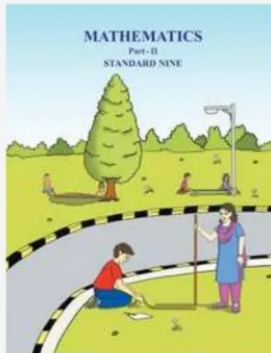


Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 6.3- Circle

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 6.3
Circle



Maharashtra Board Solutions→

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Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 6.3- Circle

Class 9: Maths Chapter 6.3 solutions. Complete Class 9 Maths Chapter 6.3 Notes.

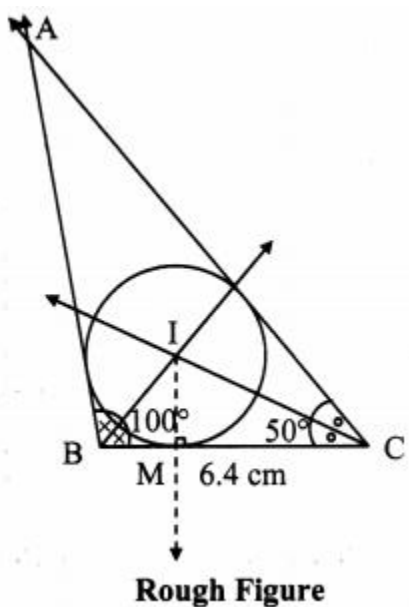
Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 6.3- Circle

Maharashtra Board 9th Maths Chapter 6.3, Class 9 Maths Chapter 6.3 solutions

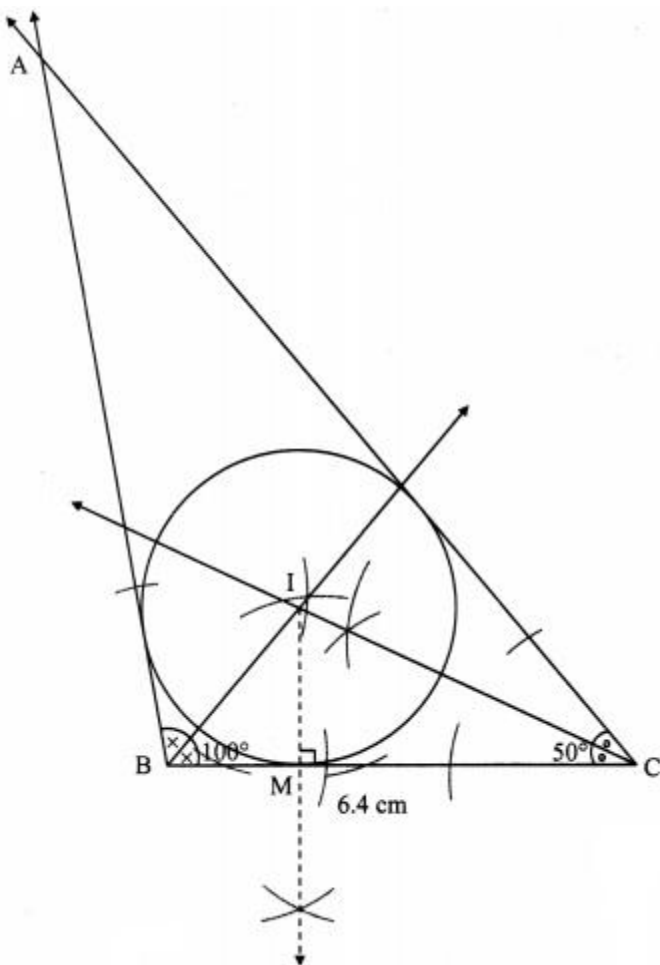
Question 1.

Construct $\triangle ABC$ such that $\angle B = 100^\circ$, $BC = 6.4$ cm, $\angle C = 50^\circ$ and construct its incircle.

Solution:



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Steps of construction:

- Construct $\triangle ABC$ of the given measurement.
- Draw the bisectors of $\angle B$ and $\angle C$. Let these bisectors intersect at point I.
- Draw a perpendicular IM on side BC. Point M is the foot of the perpendicular.
- With I as centre and IM as radius, draw a circle which touches all the three sides of the triangle.

Question 2.

Construct $\triangle PQR$ such that $\angle P = 70^\circ$, $\angle R = 50^\circ$, $QR = 7.3$ cm and construct its circumcircle.

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Solution:

In $\triangle PQR$,

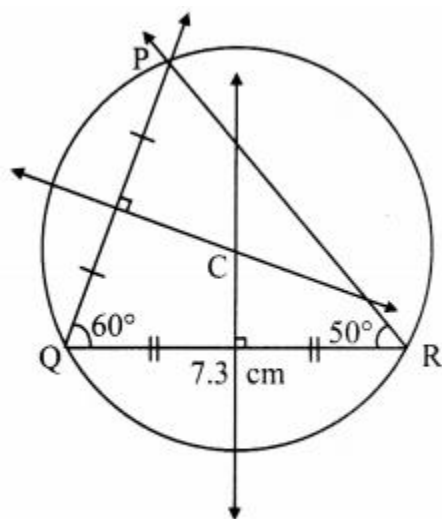
$m\angle P + m\angle Q + m\angle R = 180^\circ \dots$ [Sum of the measures of the angles of a triangle is 180°]

$$\therefore 70^\circ + m\angle Q + 50^\circ = 180^\circ$$

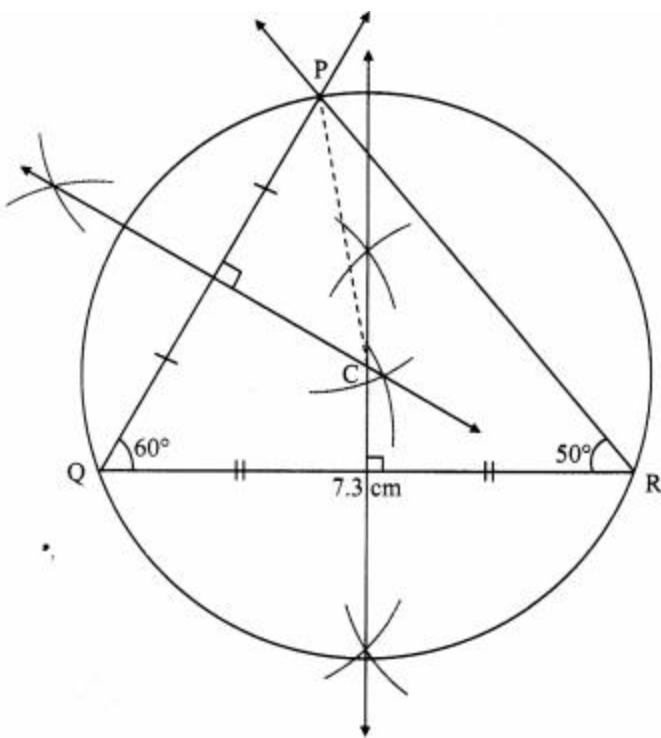
$$\therefore m\angle Q = 180^\circ - 70^\circ - 50^\circ = 60^\circ$$

$$\therefore m\angle Q = 180^\circ - 70^\circ - 50^\circ$$

$$\therefore m\angle Q = 60^\circ$$



Rough Figure



Steps of construction:

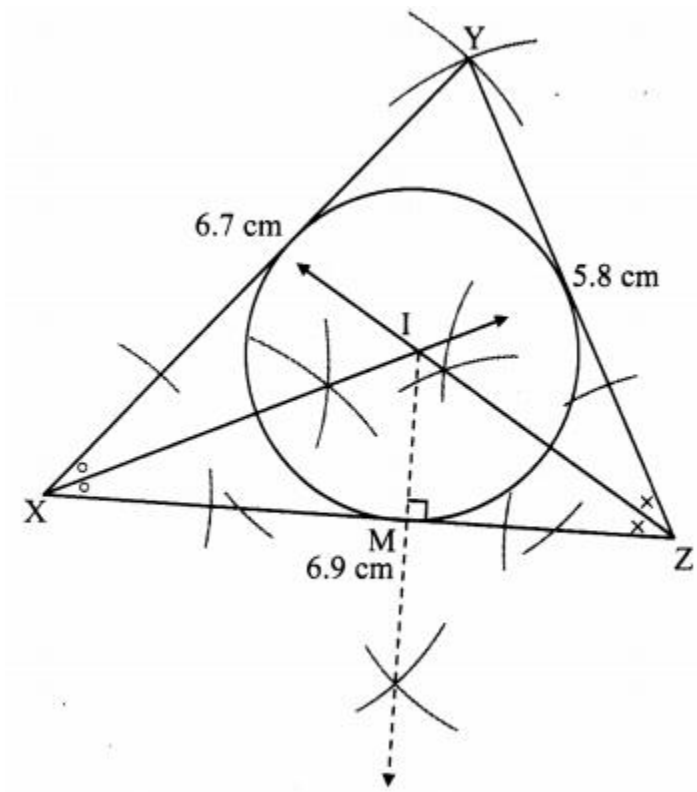
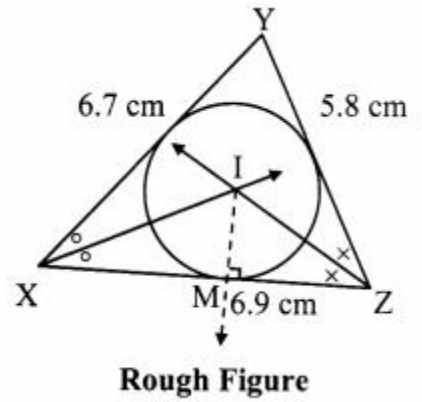
- i. Construct $\triangle PQR$ of the given measurement.
- ii. Draw the perpendicular bisectors of side PQ and side QR of the triangle.
- iii. Name the point of intersection of the perpendicular bisectors as point C.
- iv. Join seg CP
- v. With C as centre and CP as radius, draw a circle which passes through the three vertices of the triangle.

Question 3.

Construct $\triangle XYZ$ such that $XY = 6.7$ cm, $YZ = 5.8$ cm, $XZ = 6.9$ cm. Construct its incircle.

Solution:

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Steps of construction:

- Construct $\triangle XYZ$ of the given measurement
- Draw the bisectors of $\angle X$ and $\angle Z$. Let these bisectors intersect at point I.
- Draw a perpendicular IM on side XZ. Point M is the foot of the perpendicular.

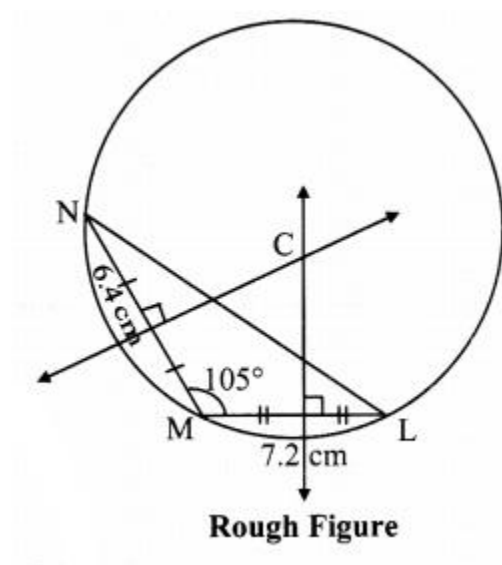
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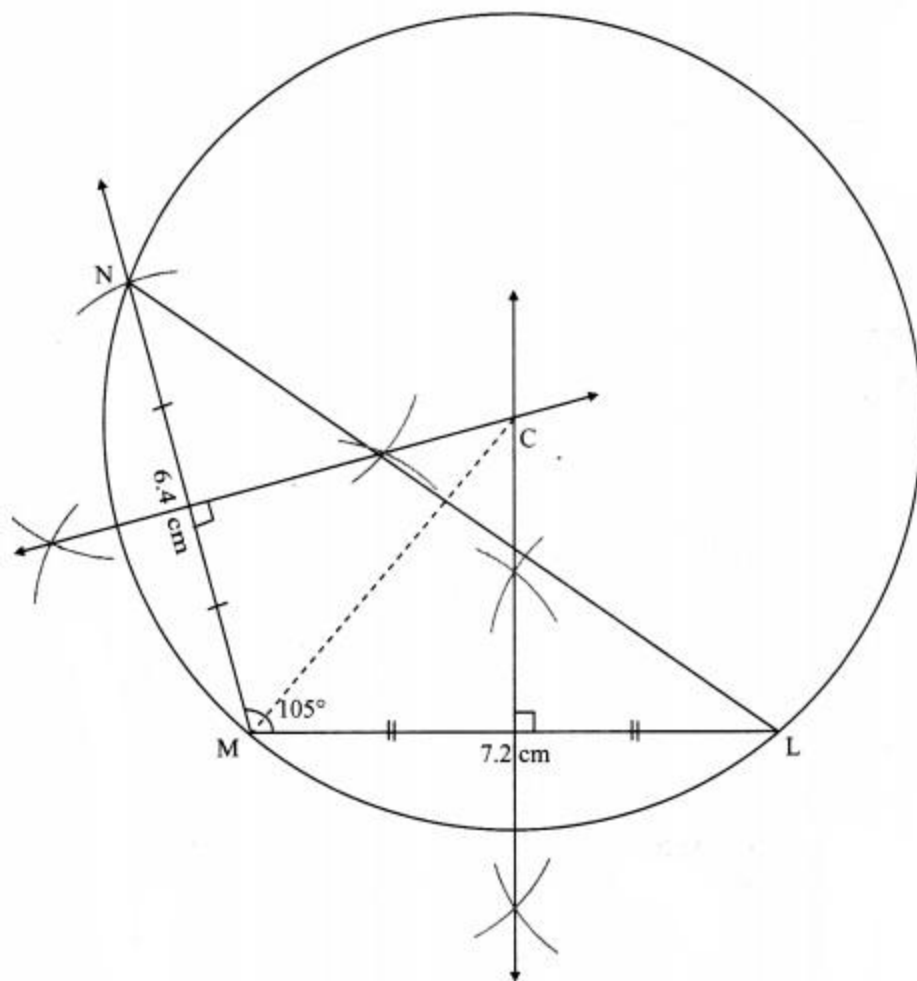
iv. With I as centre and IM as radius, draw a circle which touches all the three sides of the triangle.

Question 4.

In $\triangle LMN$, $LM = 7.2$ cm, $\angle M = 105^\circ$, $MN = 6.4$ cm, then draw $\triangle LMN$ and construct its circumcircle.

Solution:





Steps of construction:

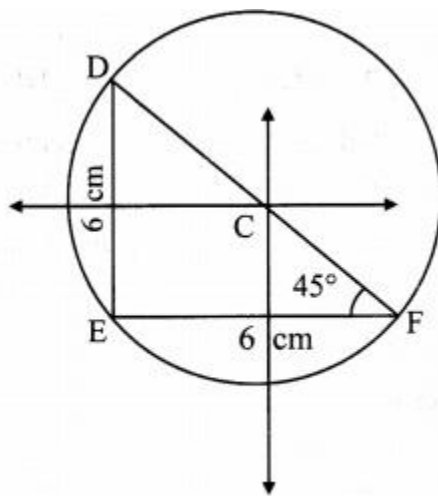
- i. Construct $\triangle LMN$ of the given measurement.
- ii. Draw the perpendicular bisectors of side MN and side ML of the triangle.
- iii. Name the point of intersection of the perpendicular bisectors as point C.
- iv. Join seg CM
- v. With C as centre and CM as radius, draw a circle which passes through the three vertices of the triangle.

Question 5.

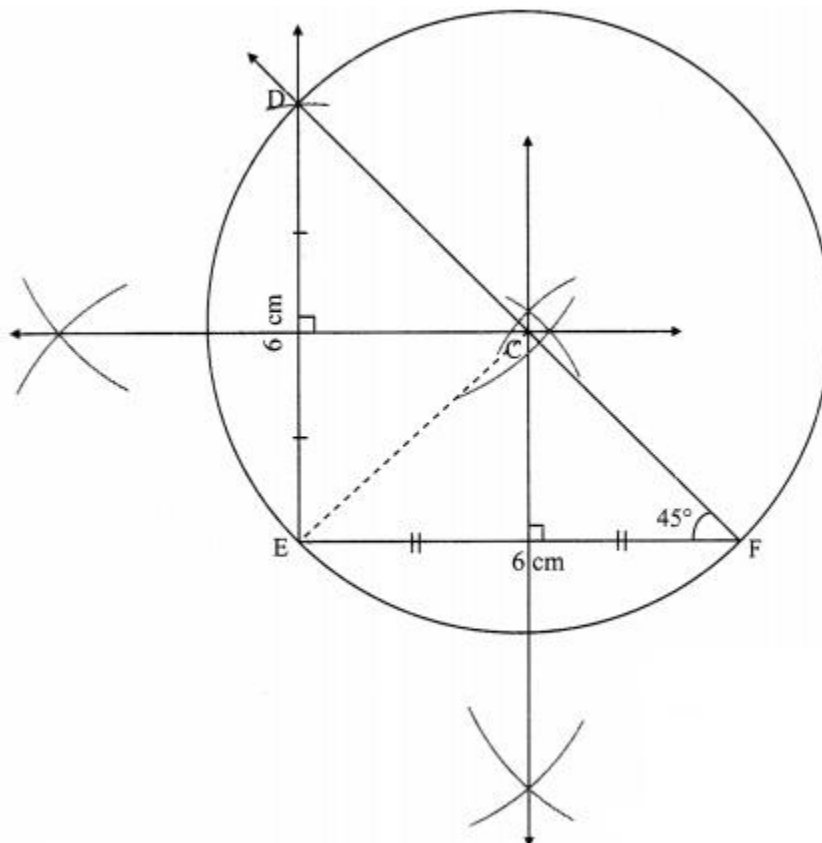
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Construct $\triangle DEF$ such that $DE = EF = 6$ cm. $\angle F = 45^\circ$ and construct its circumcircle.

Solution:



Rough Figure



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Steps of construction:

- i. Construct $\triangle DEF$ of the given measurement.
- ii. Draw the perpendicular bisectors of side DE and side EF of the triangle.
- iii. Name the point of intersection of perpendicular bisectors as point C.
- iv. Join seg CE
- v. With C as centre and CE as radius, draw a circle which passes through the three vertices of the triangle.

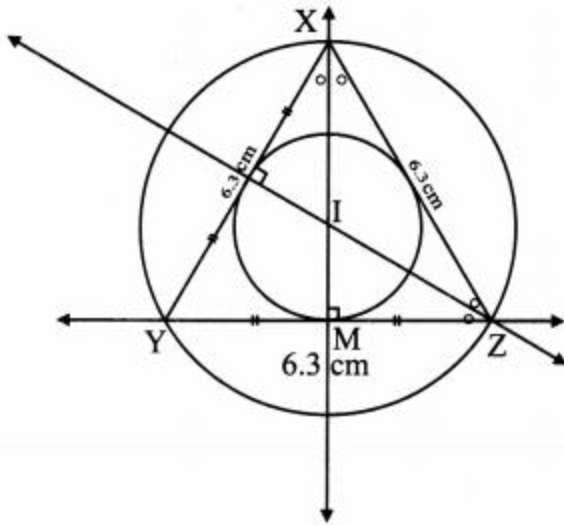
Question 1.

Draw any equilateral triangle. Draw incircle and circumcircle of it. What did you observe while doing this activity? (Textbook pg. no. 85)

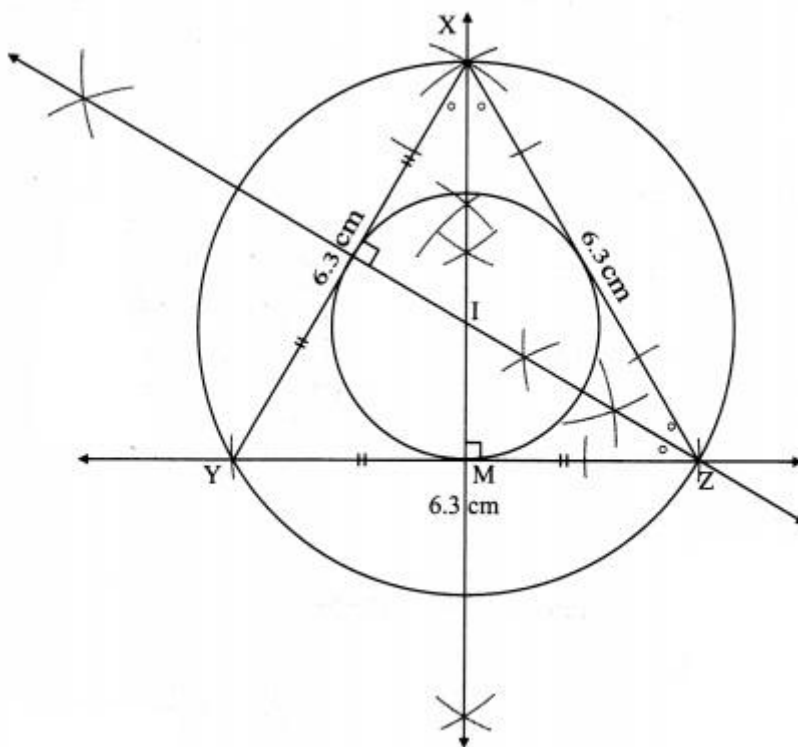
- i. While drawing incircle and circumcircle, do the angle bisectors and perpendicular bisectors coincide with each other?
- ii. Do the incentre and circumcenter coincide with each other? If so, what can be the reason of it?
- iii. Measure the radii of incircle and circumcircle and write their ratio.

Solution:

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Rough Figure



Steps of construction:

- i. Construct equilateral $\triangle XYZ$ of any measurement.

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- ii. Draw the perpendicular bisectors of side XY and side YZ of the triangle.
- iii. Draw the bisectors of $\angle X$ and $\angle Z$.
- iv. Name the point of intersection of the perpendicular bisectors and angle bisectors as point I.
- v. With I as centre and IM as radius, draw a circle which touches all the three sides of the triangle.
- vi. With I as centre and IZ as radius, draw a circle which passes through the three vertices of the triangle.

[Note: Here, point of intersection of perpendicular bisector and angle bisector is same.]

i. Yes.

ii. Yes.

The angle bisectors of the angles and the perpendicular bisectors of the sides of an equilateral triangle are coincident. Hence, its incentre and circumcentre coincide.

iii. Radius of circumcircle = 3.6 cm,

Radius of incircle = 1.8 cm

Ratio = Radius of circumcircle : Radius of incircle = $3.6 : 1.8 = 2 : 1$



Maharashtra Board Solutions

Class 9 Maths

Part 2

- Chapter 1.1- Basic Concepts in Geometry
- Chapter 1.2- Basic Concepts in Geometry
- Chapter 1.3- Basic Concepts in Geometry
- Chapter 2.1- Parallel Lines
- Chapter 2.2- Parallel Lines
- Chapter 3.1- Triangles
- Chapter 3.2- Triangles
- Chapter 3.3- Triangles
- Chapter 3.4- Triangles
- Chapter 3.5- Triangles
- Chapter 4.1- Constructions of Triangles
- Chapter 4.2- Constructions of Triangles
- Chapter 4.3- Constructions of Triangles
- Chapter 5.1- Quadrilaterals
- Chapter 5.2- Quadrilaterals
- Chapter 5.3- Quadrilaterals
- Chapter 5.4- Quadrilaterals
- Chapter 5.5- Quadrilaterals
- Chapter 6.1- Circle
- Chapter 6.2- Circle
- Chapter 6.3- Circle
- Chapter 7.1- Co-ordinate Geometry
- Chapter 7.2- Co-ordinate Geometry
- Chapter 8.1- Trigonometry
- Chapter 8.2- Trigonometry
- Chapter 9.1- Surface Area and Volume
- Chapter 9.2- Surface Area and Volume
- Chapter 9.3- Surface Area and Volume

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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