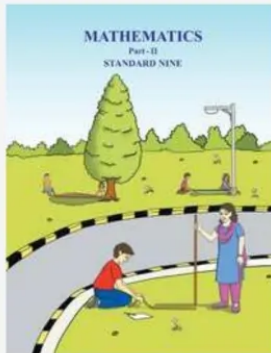


Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 8.1- Trigonometry

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 8.1
Trigonometry



Maharashtra Board Solutions→

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Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 8.1- Trigonometry

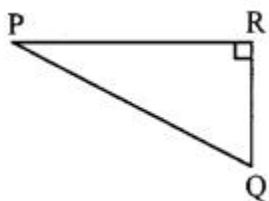
Class 9: Maths Chapter 8.1 solutions. Complete Class 9 Maths Chapter 8.1 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 8.1- Trigonometry

Maharashtra Board 9th Maths Chapter 8.1, Class 9 Maths Chapter 8.1 solutions

Question 1.

In the given figure, $\angle R$ is the right angle of $\triangle PQR$. Write the following ratios.



- i. $\sin P$
- ii. $\cos Q$
- iii. $\tan P$
- iv. $\tan Q$

Solution:

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$$\text{i. } \sin P = \frac{\text{Opposite side of } \angle P}{\text{Hypotenuse}} = \frac{QR}{PQ}$$

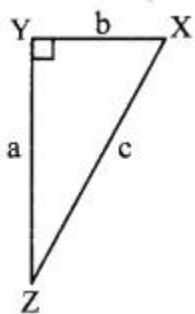
$$\text{ii. } \cos Q = \frac{\text{Adjacent side of } \angle Q}{\text{Hypotenuse}} = \frac{QR}{PQ}$$

$$\text{iii. } \tan P = \frac{\text{Opposite side of } \angle P}{\text{Adjacent side of } \angle P} = \frac{QR}{PR}$$

$$\text{iv. } \tan Q = \frac{\text{Opposite side of } \angle Q}{\text{Adjacent side of } \angle Q} = \frac{PR}{QR}$$

Question 2.

In the right angled $\triangle XYZ$, $\angle XYZ = 90^\circ$ and a, b, c are the lengths of the sides as shown in the figure. Write the following ratios.



i. $\sin x$

ii. $\tan z$

iii. $\cos x$

iv. $\tan x$.

Solution:

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$$\text{i. } \sin X = \frac{\text{Opposite side of } \angle X}{\text{Hypotenuse}} = \frac{YZ}{XZ} = \frac{a}{c}$$

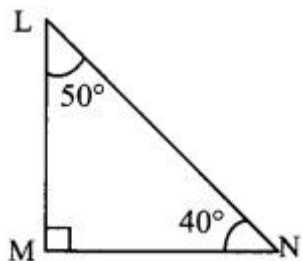
$$\text{ii. } \tan Z = \frac{\text{Opposite side of } \angle Z}{\text{Adjacent side of } \angle Z} = \frac{XY}{YZ} = \frac{b}{a}$$

$$\text{iii. } \cos X = \frac{\text{Adjacent side of } \angle X}{\text{Hypotenuse}} = \frac{XY}{XZ} = \frac{b}{c}$$

$$\text{iv. } \tan X = \frac{\text{Opposite side of } \angle X}{\text{Adjacent side of } \angle X} = \frac{YZ}{XY} = \frac{a}{b}$$

Question 3.

In right angled $\triangle LMN$, $\angle LMN = 90^\circ$, $\angle L = 50^\circ$ and $\angle N = 40^\circ$. Write the following ratios.



i. $\sin 50^\circ$

ii. $\cos 50^\circ$

iii. $\tan 40^\circ$

iv. $\cos 40^\circ$

Solution:

$$\text{i. } \sin 50^\circ = \frac{\text{Opposite side of } 50^\circ}{\text{Hypotenuse}} = \frac{\text{MN}}{\text{LN}}$$

$$\text{ii. } \cos 50^\circ = \frac{\text{Adjacent side of } 50^\circ}{\text{Hypotenuse}} = \frac{\text{LM}}{\text{LN}}$$

$$\text{iii. } \tan 40^\circ = \frac{\text{Opposite side of } 40^\circ}{\text{Adjacent side of } 40^\circ} = \frac{\text{LM}}{\text{MN}}$$

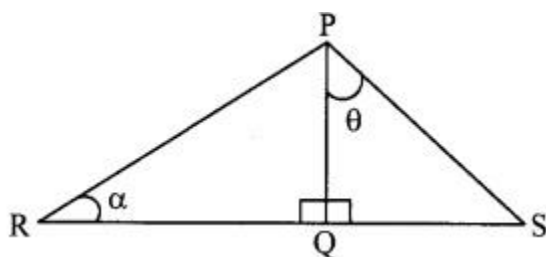
$$\text{iv. } \cos 40^\circ = \frac{\text{Adjacent side of } 40^\circ}{\text{Hypotenuse}} = \frac{\text{MN}}{\text{LN}}$$

Question 4.

In the given figure, $\angle PQR = 90^\circ$, $\angle PQS = 90^\circ$, $\angle PRQ = \alpha$ and $\angle QPS = \theta$. Write the following trigonometric ratios.

i. $\sin \alpha$, $\cos \alpha$, $\tan \alpha$

ii. $\sin \theta$, $\cos \theta$, $\tan \theta$



Solution:

i. In $\triangle PQR$,

$$\sin \alpha = \frac{\text{Opposite side of } \alpha}{\text{Hypotenuse}} = \frac{\text{PQ}}{\text{PR}}$$

$$\cos \alpha = \frac{\text{Adjacent side of } \alpha}{\text{Hypotenuse}} = \frac{\text{RQ}}{\text{PR}}$$

$$\tan \alpha = \frac{\text{Opposite side of } \alpha}{\text{Adjacent side of } \alpha} = \frac{\text{PQ}}{\text{RQ}}$$

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ii. In $\triangle PQS$,

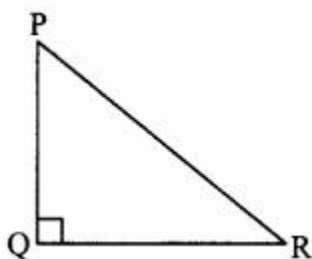
$$\sin \theta = \frac{\text{Opposite side of } \theta}{\text{Hypotenuse}} = \frac{QS}{PS}$$

$$\cos \theta = \frac{\text{Adjacent side of } \theta}{\text{Hypotenuse}} = \frac{PQ}{PS}$$

$$\tan \theta = \frac{\text{Opposite side of } \theta}{\text{Adjacent side of } \theta} = \frac{QS}{PQ}$$

Question 1.

In the figure given below, $\triangle PQR$ is a right angled triangle. Write the names of sides opposite and adjacent to $\angle P$ and $\angle R$. (Textbook pg no. 102)



Solution:

In right angled $\triangle PQR$,

i. side opposite to $\angle P = QR$

ii. side opposite to $\angle R = PQ$

iii. side adjacent to $\angle P = PQ$

iv. side adjacent to $\angle R = QR$



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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About About Maharashtra State Board (MSBSHSE)

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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FAQs

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How many state boards are there in Maharashtra?

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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