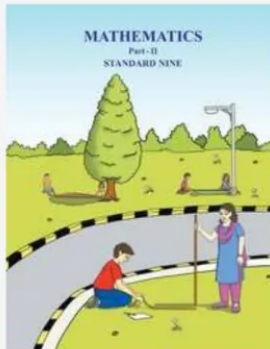


Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 3.4- Triangles

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 3.4
Triangles



Maharashtra Board Solutions→

For any clarifications or questions you can write to info@indcareer.com

Postal Address

IndCareer.com, 52, Shilpa Nagar, Somalwada Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888, **Website:** <https://www.indcareer.com>

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>



Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 3.4- Triangles

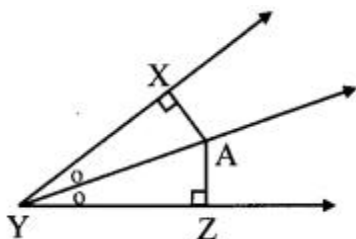
Class 9: Maths Chapter 3.4 solutions. Complete Class 9 Maths Chapter 3.4 Notes.

Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 3.4- Triangles

Maharashtra Board 9th Maths Chapter 3.4, Class 9 Maths Chapter 3.4 solutions

Question 1.

In the adjoining figure, point A is on the bisector of $\angle XYZ$. If $AX = 2$ cm, then find AZ .



Solution:

$AX = 2$ cm [Given]

Point A lies on the bisector of $\angle XYZ$. [Given]

Point A is equidistant from the sides of $\angle XYZ$. [Every point on the bisector of an angle is equidistant from the sides of the angle]

$$\therefore AZ = AX$$

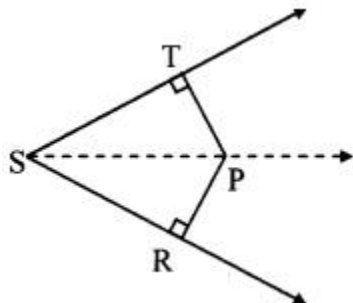
$$\therefore AZ = 2 \text{ cm}$$

Question 2.

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

In the adjoining figure, $\angle RST = 56^\circ$, $\text{seg } PT \perp \text{ray } ST$, $\text{seg } PR \perp \text{ray } SR$ and $\text{seg } PR \cong \text{seg } PT$. Find the measure of $\angle RSP$.

State the reason for your answer.



Solution:

$\text{seg } PT \perp \text{ray } ST$, $\text{seg } PR \perp \text{ray } SR$ [Given]

$\text{seg } PR \cong \text{seg } PT$

$\therefore$ Point P lies on the bisector of $\angle TSR$ [Any point equidistant from the sides of an angle is on the bisector of the angle]

$\therefore$ Ray SP is the bisector of $\angle RST$.

$\angle RSP = 56^\circ$ [Given]

$\therefore \angle RSP = \frac{1}{2} \angle RST$

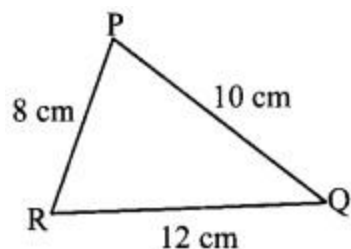
$= \frac{1}{2} \times 56^\circ$

$\therefore \angle RSP = 28^\circ$

Question 3.

In $\triangle PQR$, $PQ = 10$ cm, $QR = 12$ cm, $PR = 8$ cm. Find out the greatest and the smallest angle of the triangle.

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

**Solution:**

In $\triangle PQR$,

$PQ = 10$ cm, $QR = 12$ cm, $PR = 8$ cm [Given]

Since, $12 > 10 > 8$

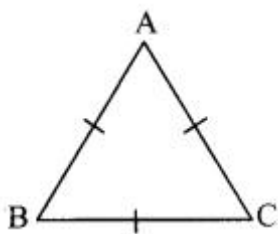
$\therefore QR > PQ > PR$

$\therefore \angle QPR > \angle PRQ > \angle PQR$ [Angle opposite to greater side is greater]

$\therefore$ In $\triangle PQR$, $\angle QPR$ is the greatest angle and $\angle PQR$ is the smallest angle.

Question 4.

In $\triangle FAN$, $\angle F = 80^\circ$, $\angle A = 40^\circ$. Find out the greatest and the smallest side of the triangle. State the reason.

**Solution:**

In $\triangle FAN$,

$\angle F + \angle A + \angle N = 180^\circ$ [Sum of the measures of the angles of a triangle is 180°]

$\therefore 80^\circ + 40^\circ + \angle N = 180^\circ$

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

$$\therefore \angle N = 180^\circ - 80^\circ - 40^\circ$$

$$\therefore \angle N = 60^\circ$$

Since, $80^\circ > 60^\circ > 40^\circ$

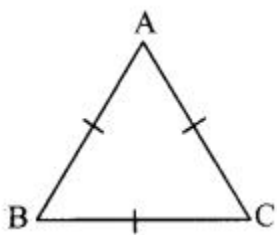
$$\therefore \angle F > \angle N > \angle A$$

$$\therefore AN > FA > FN \text{ [Side opposite to greater angle is greater]}$$

$\therefore$ In $\triangle FAN$, AN is the greatest side and FN is the smallest side.

Question 5.

Prove that an equilateral triangle is equiangular.



Given: $\triangle ABC$ is an equilateral triangle.

To prove: $\triangle ABC$ is equiangular

i.e. $\angle A \cong \angle B \cong \angle C$... (i) [Sides of an equilateral triangle]

In $\triangle ABC$,

$\text{seg } AB \cong \text{seg } BC$ [From (i)]

$$\therefore \angle C = \angle A \text{ (ii) [Isosceles triangle theorem]}$$

In $\triangle ABC$,

$\text{seg } BC \cong \text{seg } AC$ [From (i)]

$$\therefore \angle A \cong \angle B \text{ (iii) [Isosceles triangle theorem]}$$

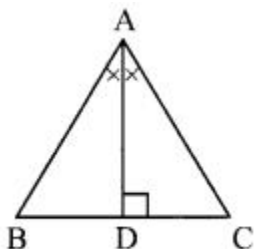
$$\therefore \angle A \cong \angle B \cong \angle C \text{ [From (ii) and (iii)]}$$

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

$\therefore \triangle ABC$ is equiangular.

Question 6.

Prove that, if the bisector of $\angle BAC$ of $\triangle ABC$ is perpendicular to side BC , then $\triangle ABC$ is an isosceles triangle.



Given: Seg AD is the bisector of $\angle BAC$.

seg $AD \perp$ seg BC

To prove: $\triangle ABC$ is an isosceles triangle.

Proof.

In $\triangle ABD$ and $\triangle ACD$,

$\angle BAD \cong \angle CAD$ [seg AD is the bisector of $\angle BAC$]

seg $AD \cong$ seg AD [Common side]

$\angle ADB \cong \angle ADC$ [Each angle is of measure 90°]

$\therefore \triangle ABD \cong \triangle ACD$ [ASA test]

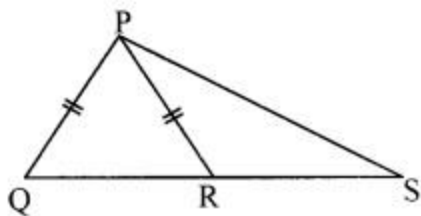
$\therefore$ seg $AB \cong$ seg AC [c. s. c. t.]

$\therefore \triangle ABC$ is an isosceles triangle.

Question 7.

In the adjoining figure, if seg $PR \cong$ seg PQ , show that seg $PS >$ seg PQ .

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

**Solution:**

Proof.

In $\triangle PQR$,

seg $PR \cong$ seg PQ [Given]

$\therefore \angle PQR \cong \angle PRQ$ (i) [Isosceles triangle theorem]

$\angle PRQ$ is the exterior angle of $\triangle PRS$.

$\therefore \angle PRQ > \angle PSR$ (ii) [Property of exterior angle]

$\therefore \angle PQR > \angle PSR$ [From (i) and (ii)]

i.e. $\angle Q > \angle S$ (iii)

In $\triangle PQS$,

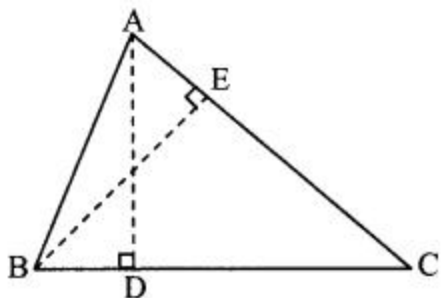
$\angle Q > \angle S$ [From (iii)]

$\therefore PS > PQ$ [Side opposite to greater angle is greater]

$\therefore$ seg $PS >$ seg PQ

Question 8.

In the adjoining figure, in $\triangle ABC$, seg AD and seg BE are altitudes and $AE = BD$.
Prove that seg $AD =$ seg BE .



Solution:

Proof:

In $\triangle ADB$ and $\triangle BEA$,

seg $BD \cong$ seg AE [Given]

$\angle ADB \cong \angle BEA = 90^\circ$ [Given]

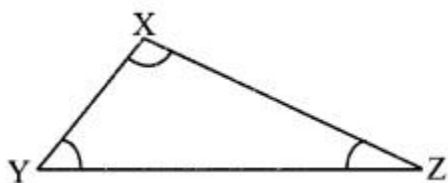
seg $AB \cong$ seg BA [Common side]

$\therefore \triangle ADB \cong \triangle BEA$ [Hypotenuse-side test]

$\therefore$ seg $AD \cong$ seg BE [c. s. c. t.]

Question 1.

As shown in the given figure, draw $\triangle XYZ$ such that side $XZ >$ side XY . Find which of $\angle Z$ and $\angle Y$ is greater. (Textbook pg. no. 41)



Answer:

From the given figure, $\angle Z = 25^\circ$ and $\angle Y = 51^\circ$

$\therefore \angle Y$ is greater.

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>



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

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

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.

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

FAQs

Where do I get the Maharashtra State Board Books PDF For free download?

You can download the Maharashtra State Board Books from the eBalbharti official website, i.e. cart.ebalbharati.in or from this article.

Add image

How to Download Maharashtra State Board Books?

Students can get the Maharashtra Books for primary, secondary, and senior secondary classes from here. You can view or download the Maharashtra State Board Books from this page or from the official website for free of cost. Students can follow the detailed steps below to visit the official website and download the e-books for all subjects or a specific subject in different mediums.

Step 1: Visit the official website ebalbharati.in

Step 2: On the top of the screen, select "Download PDF textbooks"

Step 3: From the "Classes" section, select your class.

Step 4: From "Medium", select the medium suitable to you.

Step 5: All Maharashtra board books for class 11th will now be displayed on the right side.

Step 6: Click on the "Download" option to download the PDF book.

Who developed the Maharashtra State board books?

As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

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.

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>

About IndCareer

IndCareer.com is a leading developer of online career guidance resources for the Indian marketplace. Established in 2007, IndCareer.com is currently used by over thousands of institutions across India, including schools, employment agencies, libraries, colleges and universities.

IndCareer.com is designed to assist you in making the right career decision - a decision that meets your unique interests and personality.

For any clarifications or questions you can write to **info@indcareer.com**

Postal Address

IndCareer.com
52, Shilpa Nagar,
Somalwada
Nagpur - 440015
Maharashtra, India

WhatsApp: +91 9561 204 888

Website: <https://www.indcareer.com>

<https://www.indcareer.com/schools/maharashtra-board-solutions-class-9-maths-part-2-chapter-3-4-triangles/>