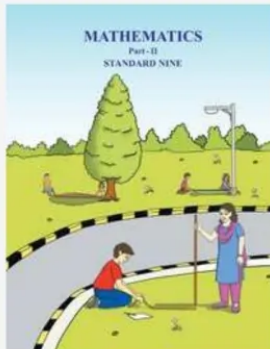


Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 5.4- Quadrilaterals

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 5.4
Quadrilaterals



Maharashtra Board Solutions→

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

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Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 5.4- Quadrilaterals

Class 9: Maths Chapter 5.4 solutions. Complete Class 9 Maths Chapter 5.4 Notes.

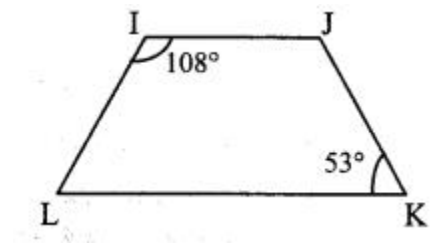
Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 5.4- Quadrilaterals

Maharashtra Board 9th Maths Chapter 5.4, Class 9 Maths Chapter 5.4 solutions

Question 1.

In $\square IJKL$, side $IJ \parallel$ side KL , $\angle I = 108^\circ$ and $\angle K = 53^\circ$, then find the measures of $\angle J$ and $\angle L$.

Solution:



i. $\angle I = 108^\circ$ [Given]

side $IJ \parallel$ side KL and side IL is their transversal. [Given]

$\therefore \angle I + \angle L = 180^\circ$ [Interior angles]

$\therefore 108^\circ + \angle L = 180^\circ$

$\therefore \angle L = 180^\circ - 108^\circ = 72^\circ$

ii. $\angle K = 53^\circ$ [Given]

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side IJ $\parallel$ side KL and side JK is their transversal. [Given]

$$\therefore \angle J + \angle K = 180^\circ \text{ [Interior angles]}$$

$$\therefore \angle J + 53^\circ = 180^\circ$$

$$\therefore \angle J = 180^\circ - 53^\circ = 127^\circ$$

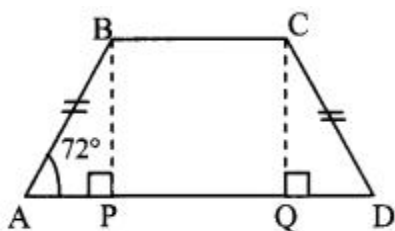
$$\therefore \angle L = 72^\circ, \angle J = 127^\circ$$

Question 2.

In $\square ABCD$, side BC $\parallel$ side AD, side AB $\cong$ side DC. If $\angle A = 72^\circ$, then find the measures of $\angle B$ and $\angle D$.

Construction: Draw seg BP $\perp$ side AD, A – P – D, seg CQ $\perp$ side AD, A – Q – D.

Solution:



i. $\angle A = 72^\circ$ [Given]

In $\square ABCD$, side BC $\parallel$ side AD and side AB is their transversal. [Given]

$$\therefore \angle A + \angle B = 180^\circ \text{ [Interior angles]}$$

$$\therefore 72^\circ + \angle B = 180^\circ$$

$$\therefore \angle B = 180^\circ - 72^\circ = 108^\circ$$

ii. In $\triangle BPA$ and $\triangle CQD$,

$$\angle BPA \cong \angle CQD \text{ [Each angle is of measure } 90^\circ]$$

Hypotenuse AB $\cong$ Hypotenuse DC [Given]

seg BP $\cong$ seg CQ [Perpendicular distance between two parallel lines]

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$\therefore \triangle BPA \cong \triangle CQD$ [Hypotenuse side test]

$\therefore \angle BAP \cong \angle CDQ$ [c. a. c. t.]

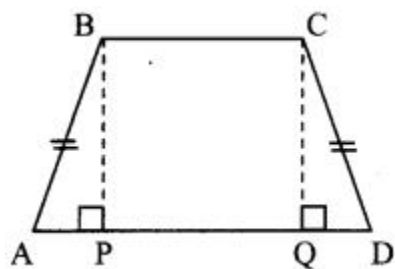
$\therefore \angle A = \angle D$

$\therefore \angle D = 72^\circ$

$\therefore \angle B = 108^\circ, \angle D = 72^\circ$

Question 3.

In $\square ABCD$, side $BC < \text{side } AD$, side $BC \parallel \text{side } AD$ and if side $BA \cong \text{side } CD$, then prove that $\angle ABC = \angle DCB$.



Given: side $BC < \text{side } AD$, side $BC \parallel \text{side } AD$, side $BA = \text{side } CD$

To prove: $\angle ABC \cong \angle DCB$

Construction: Draw seg $BP \perp \text{side } AD$, $A - P - D$

seg $CQ \perp \text{side } AD$, $A - Q - D$

Solution:

Proof:

In $\triangle BPA$ and $\triangle CQD$,

$\angle BPA \cong \angle CQB$ [Each angle is of measure 90°]

Hypotenuse $BA \cong \text{Hypotenuse } CD$ [Given]

seg $BP \cong \text{seg } CQ$ [Perpendicular distance between two parallel lines]

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$\therefore \triangle BPA \cong \triangle CQD$ [Hypotenuse side test]

$\therefore \angle BAP \cong \angle CDQ$ [c. a. c. t.]

$\therefore \angle A = \angle D$ (i)

Now, side $BC \parallel$ side AD and side AB is their transversal. [Given]

$\therefore \angle A + \angle B = 180^\circ$ (ii) [Interior angles]

Also, side $BC \parallel$ side AD and side CD is their transversal. [Given]

$\therefore \angle C + \angle D = 180^\circ$ (iii) [Interior angles]

$\therefore \angle A + \angle B = \angle C + \angle D$ [From (ii) and (iii)]

$\therefore \angle A + \angle B = \angle C + \angle A$ [From (i)]

$\therefore \angle B = \angle C$

$\therefore \angle ABC \cong \angle DCB$



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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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.

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