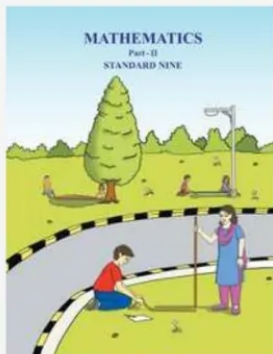


Maharashtra Board Solutions Class 9-Maths

(Part 2): Chapter 4.1- Constructions of Triangles

BOOK SOLUTIONS
CLASS 9
MATHS (PART 2)

CHAPTER 4.1
Constructions of Triangles



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 4.1- Constructions of Triangles

Class 9: Maths Chapter 4.1 solutions. Complete Class 9 Maths Chapter 4.1 Notes.

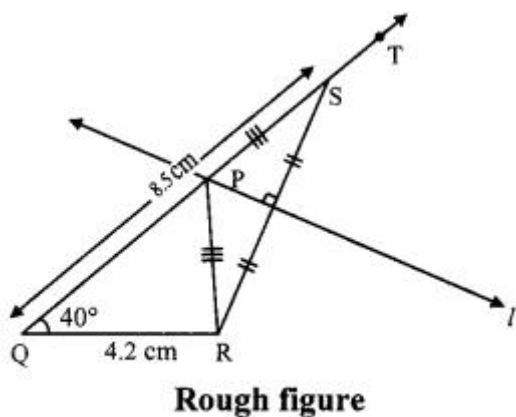
Maharashtra Board Solutions Class 9-Maths (Part 2): Chapter 4.1- Constructions of Triangles

Maharashtra Board 9th Maths Chapter 4.1, Class 9 Maths Chapter 4.1 solutions

Question 1.

Construct $\triangle PQR$, in which $QR = 4.2$ cm, $m\angle Q = 40^\circ$ and $PQ + PR = 8.5$ cm.

Solution:



As shown in the rough figure draw seg $QR = 4.2$ cm

Draw a ray QT making an angle of 40° with QR

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Take a point S on ray QT, such that $QS = 8.5$ cm

Now, $QP + PS = QS$ [Q-P-S]

$$\therefore QP + PS = 8.5 \text{ cm} \dots\dots(i)$$

Also, $PQ + PR = 8.5$ cm(ii) [Given]

$$\therefore QP + PS = PQ + PR \text{ [From (i) and (ii)]}$$

$$\therefore PS = PR$$

$\therefore$ Point P is on the perpendicular bisector of seg SR

$\therefore$ The point of intersection of ray QT and perpendicular bisector of seg SR is point P.

Steps of construction:

i. Draw seg QR of length 4.2 cm.

ii. Draw ray QT, such that $\angle RQT = 40^\circ$.

iii. Mark point S on ray QT such that $QS = 8.5$ cm.

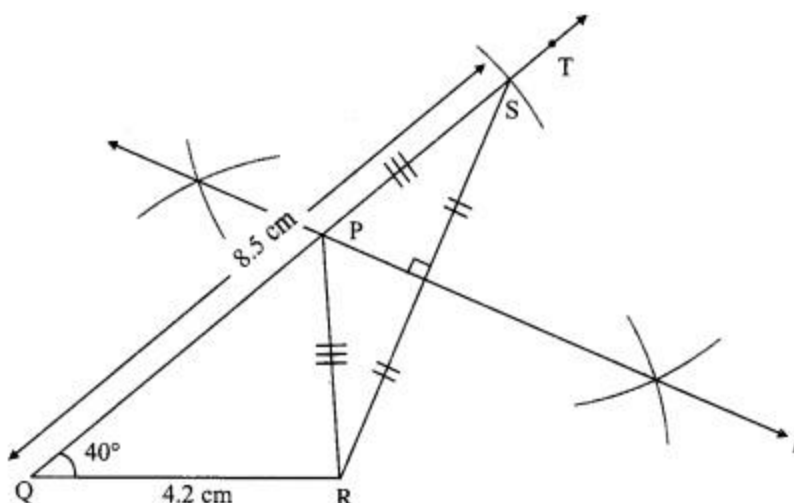
iv. Join points R and S.

v. Draw perpendicular bisector of seg RS intersecting ray QT.

Name the point as P.

vi. Join the points P and R.

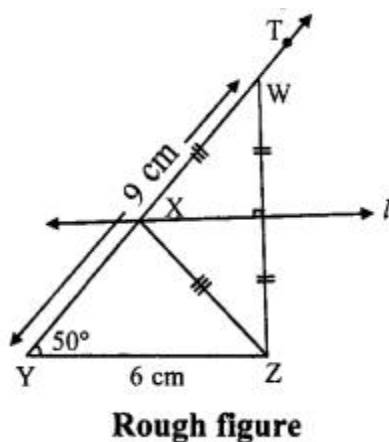
Hence, ΔPQR is the required triangle.



Question 2.

Construct $\triangle XYZ$, in which $YZ = 6$ cm, $XY + XZ = 9$ cm, $\angle XYZ = 50^\circ$.

Solution:



As shown in the rough figure draw seg $YZ = 6$ cm

Draw a ray YT making an angle of 50° with YZ

Take a point W on ray YT , such that $YW = 9$ cm

Now, $YX + XW = YW$ [Y-X-W]

$\therefore YX + XW = 9$ cm(i)

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Also, $XY + XZ = 9 \text{ cm}$ (ii) [Given]

$\therefore YX + XW = XY + XZ$ [From (i) and (ii)]

$\therefore XW = XZ$

$\therefore$ Point X is on the perpendicular bisector of seg WZ

$\therefore$ The point of intersection of ray YT and perpendicular bisector of seg WZ is j point X.

Steps of construction:

i. Draw seg YZ of length 6 cm.

ii. Draw ray YT, such that $\angle ZYT = 50^\circ$.

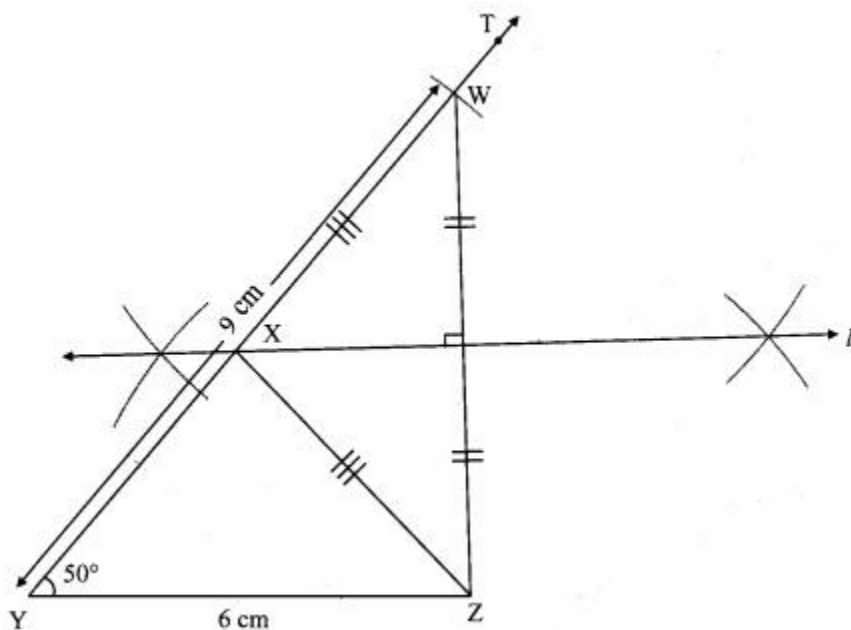
iii. Mark point W on ray YT such that $l(YW) = 9 \text{ cm}$.

iv. Join points W and Z.

v. Draw perpendicular bisector of seg WZ intersecting ray YT. Name the point as X.

vi. Join the points X and Z.

Hence, $\triangle XYZ$ is the required triangle.

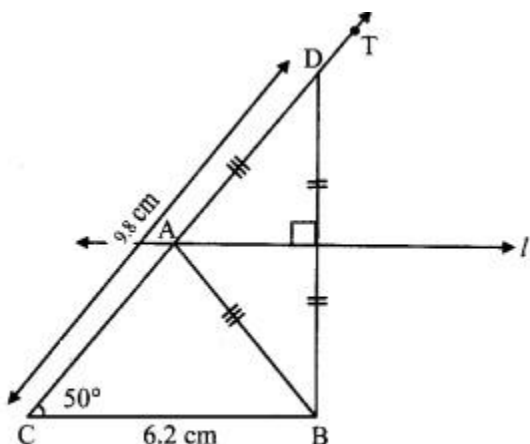


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Question 3.

Construct $\triangle ABC$, in which $BC = 6.2$ cm, $\angle ACB = 50^\circ$, $AB + AC = 9.8$ cm.

Solution:



Rough figure

As shown in the rough figure draw seg $CB = 6.2$ cm

Draw a ray CT making an angle of 50° with CB

Take a point D on ray CT , such that

$$CD = 9.8 \text{ cm}$$

$$\text{Now, } CA + AD = CD \text{ [C-A-D]}$$

$$\therefore CA + AD = 9.8 \text{ cm} \dots\dots(i)$$

$$\text{Also, } AB + AC = 9.8 \text{ cm} \dots\dots(ii) \text{ [Given]}$$

$$\therefore CA + AD = AB + AC \text{ [From (i) and (ii)]}$$

$$\therefore AD = AB$$

$\therefore$ Point A is on the perpendicular bisector of seg DB

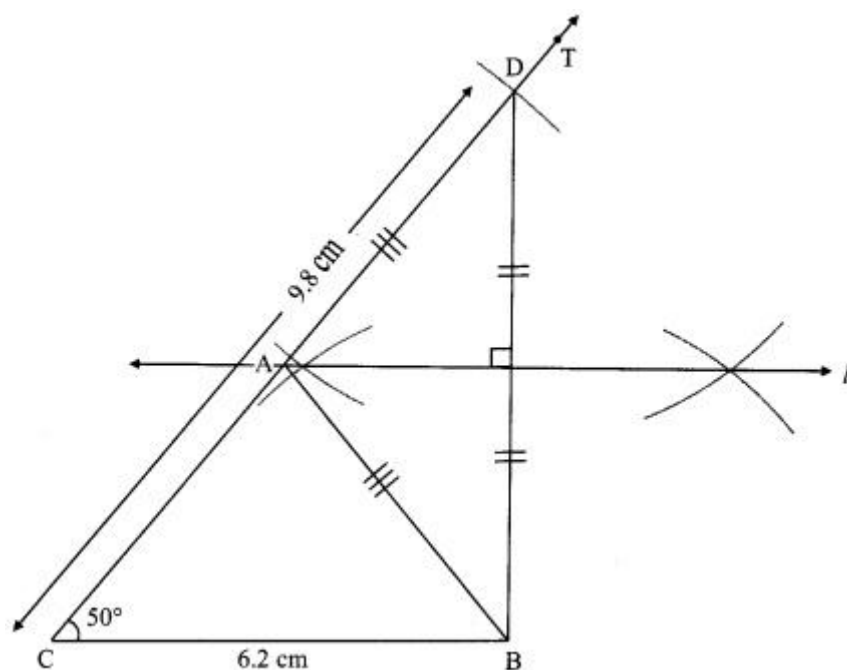
$\therefore$ The point of intersection of ray CT and perpendicular bisector of seg DB is point A .

Steps of construction:

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- i. Draw seg BC of length 6.2 cm.
- ii. Draw ray CT, such that $\angle BCT = 50^\circ$.
- iii. Mark point D on ray CT such that $l(CD) = 9.8$ cm.
- iv. Join points D and B.
- v. Draw perpendicular bisector of seg DB intersecting ray CT. Name the point as A.
- vi. Join the points A and B.

Hence, $\triangle ABC$ is the required triangle.

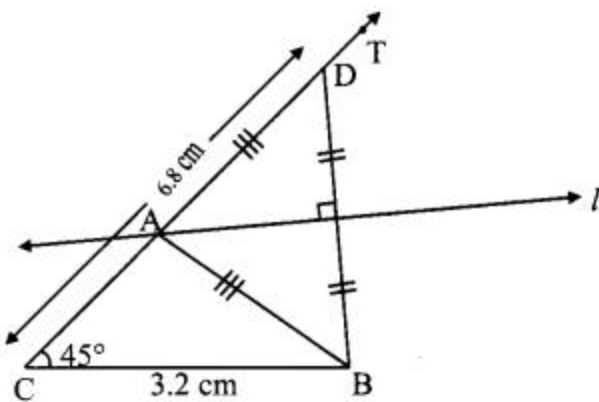


Question 4.

Construct $\triangle ABC$, in which $BC = 3.2$ cm, $\angle ACB = 45^\circ$ and perimeter of $\triangle ABC$ is 10 cm.

Solution:

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Rough figure

Perimeter of $\triangle ABC = AB + BC + AC$

$$\therefore 10 = AB + 3.2 + AC$$

$$\therefore AB + AC = 10 - 3.2$$

$$\therefore AB + AC = 6.8 \text{ cm}$$

Now, In $\triangle ABC$

$$BC = 3.2 \text{ cm}, \angle ACB = 45^\circ \text{ and } AB + AC = 6.8 \text{ cm} \dots(i)$$

As shown in the rough figure draw a seg $BC = 3.2 \text{ cm}$

Draw a ray CT making an angle of 45° with CB

Take a point D on ray CT , such that

$$CD = 6.8 \text{ cm}$$

$$\text{Now, } CA + AD = CD \text{ [C-A-D]}$$

$$\therefore CA + AD = 6.8 \text{ cm} \dots(ii)$$

$$\text{Also, } AB + AC = 6.8 \text{ cm} \dots(iii) \text{ [From (i)]}$$

$$\therefore CA + AD = AB + AC \text{ [From (ii) and (iii)]}$$

$$\therefore AD = AB$$

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$\therefore$ Point A is on the perpendicular bisector of seg DB

$\therefore$ The point of intersection of ray CT and perpendicular bisector of seg DB is point A.

Steps of construction:

i. Draw seg BC of length 3.2 cm.

ii. Draw ray CT, such that $\angle BCT = 45^\circ$.

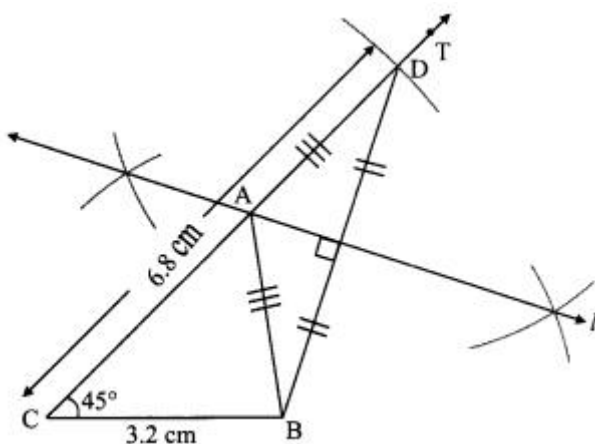
iii. Mark point D on ray CT such that $l(CD) = 6.8$ cm. that

iv. Join points D and B.

v. Draw perpendicular bisector of seg DB intersecting ray CT. Name the point as A.

vi. Join the points A and B.

Hence, $\triangle ABC$ is the required triangle.





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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
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- Chapter 9.1- Surface Area and Volume
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- 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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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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