

Maharashtra Board Solutions Class 8-Maths

(Practice Set 15.5): Chapter 15- Area



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Maharashtra Board Solutions Class 8-Maths

(Practice Set 15.5): Chapter 15- Area

Class 8: Maths Chapter 15 solutions. Complete Class 8 Maths Chapter 15 Notes.

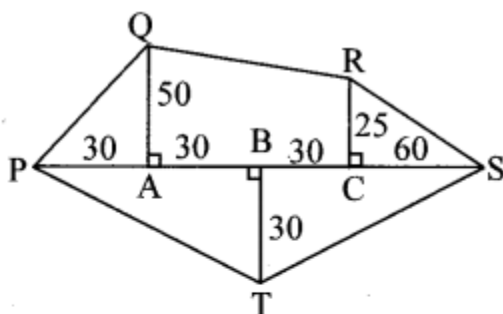
Maharashtra Board Solutions Class 8-Maths (Practice Set 15.5): Chapter 15- Area

Maharashtra Board 8th Maths Chapter 15, Class 8 Maths Chapter 15 solutions

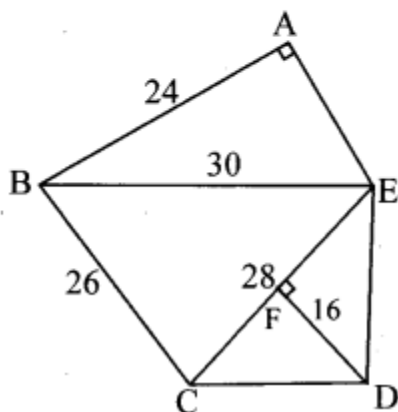
Question 1.

Find the areas of given plots. (All measures are in meters.)

i.



ii.



Solution:

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i. Here, $\triangle QAP$, $\triangle RCS$ are right angled triangles and $\square QACR$ is a trapezium.

In $\triangle QAP$, $l(AP) = 30$ m, $l(QA) = 50$ m

$A(\triangle QAP)$

= $12 \times$ product of sides forming the right angle

= $12 \times l(AP) \times l(QA)$

= $12 \times 30 \times 50$

= 750 sq. m

In $\square QACR$, $l(QA) = 50$ m, $l(RC) = 25$ m,

$l(AC) = l(AB) + l(BC)$

= $30 + 30 = 60$ m

$A(\square QACR)$

= $12 \times$ sum of lengths of parallel sides $\times$ height

= $12 \times [l(QA) + l(RC)] \times l(AC)$

= $12 \times (50 + 25) \times 60$

= $12 \times 75 \times 60$

= 2250 sq.m

In $\triangle RCS$, $l(CS) = 60$ m, $l(RC) = 25$ m $A(\triangle RCS)$

= $12 \times$ product of sides forming the right angle

= $12 \times l(CS) \times l(RC)$

= $12 \times 60 \times 25$

= 750 sq. m

In $\triangle PTS$, $l(TB) = 30$ m,

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$$l(PS) = l(PA) + l(AB) + l(BC) + l(CS)$$

$$= 30 + 30 + 30 + 60$$

$$= 150\text{m}$$

$$A(\Delta PTS) = 12 \times \text{base} \times \text{height}$$

$$= 12 \times l(PS) \times l(TB)$$

$$= 12 \times 150 \times 30$$

$$= 2250 \text{ sq. m}$$

$$\therefore \text{Area of plot QPTSR} = A(\Delta QAP) + A(\square QACR) + A(\Delta RCS) + A(\Delta PTS)$$

$$= 750 + 2250 + 750 + 2250$$

$$= 6000 \text{ sq. m}$$

$\therefore$ The area of the given plot is 6000 sq.m.

ii. In ΔABE , $m\angle BAE = 90^\circ$, $l(AB) = 24 \text{ m}$, $l(BE) = 30 \text{ m}$

$$\therefore [l(BE)]^2 = [l(AB)]^2 + [l(AE)]^2$$

...[Pythagoras theorem]

$$\therefore (30)^2 = (24)^2 + [l(AE)]^2$$

$$\therefore 900 = 576 + [l(AE)]^2$$

$$\therefore [l(AE)]^2 = 900 - 576$$

$$\therefore [l(AE)]^2 = 324$$

$$\therefore l(AE) = \sqrt{324} = 18 \text{ m}$$

...[Taking square root of both sides]

$$A(\Delta ABE)$$

$$= 12 \times \text{product of sides forming the right angle}$$

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$$= 12 \times l(AE) \times l(AB)$$

$$= 12 \times 18 \times 24$$

$$= 216 \text{ sq. m}$$

In $\triangle BCE$, $a = 30\text{m}$, $b = 28\text{m}$, $c = 26\text{m}$

$$\begin{aligned}\text{Semiperimeter of } \triangle BCE = s &= \frac{1}{2} (a + b + c) \\ &= \frac{30 + 28 + 26}{2} \\ &= \frac{84}{2} \\ &= 42 \text{ m}\end{aligned}$$

$$\begin{aligned}A(\triangle BCE) &= \sqrt{s(s-a)(s-b)(s-c)} \\ &= \sqrt{42(42-30)(42-28)(42-26)} \\ &= \sqrt{42 \times 12 \times 14 \times 16} \\ &= \sqrt{2 \times 3 \times 7 \times 2 \times 2 \times 3 \times 2 \times 7 \times 4 \times 4} \\ &= \sqrt{2^2 \times 2^2 \times 3^2 \times 4^2 \times 7^2} \\ &= 2 \times 2 \times 3 \times 4 \times 7 \\ &= 336 \text{ sq. m}\end{aligned}$$

In $\triangle EDC$, $l(CE) = 28 \text{ m}$, $l(DF) = 16 \text{ m}$

$$\begin{aligned}A(\triangle EDC) &= \frac{1}{2} \times \text{base} \times \text{height} \\ &= \frac{1}{2} \times l(CE) \times l(DF) \\ &= \frac{1}{2} \times 28 \times 16 \\ &= 224 \text{ sq. m}\end{aligned}$$

$\therefore$ Area of plot ABCDE

$$= A(\triangle ABE) + A(\triangle BCE) + A(\triangle EDC)$$

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$$= 216 + 336 + 224$$

$$= 776 \text{ sq. m}$$

∴ The area of the given plot is 776 sq.m.

[Note: In the given figure, we have taken $l(\text{DF}) = 16 \text{ m}$]



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- Chapter 1- Rational and Irrational Numbers (Practice Set 1.3)
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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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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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