



# MATHS

## BOOKS - SUBHASH PUBLICATION

### THE TRIANGLE AND ITS PROPERTIES

#### Example

1. Draw rough sketches for the following: In  $\triangle ABC$ , BE is a median.



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2. Draw rough sketches for the following: In  $\triangle PQR$ ,  $PQ$  and  $PR$  are altitudes of the triangles.



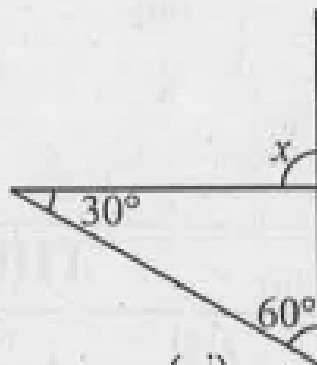
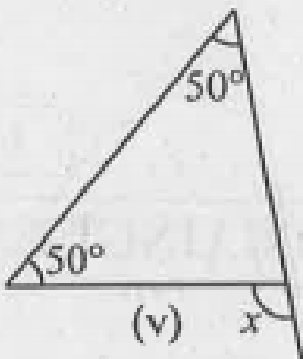
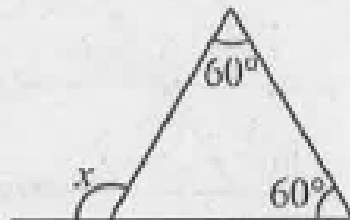
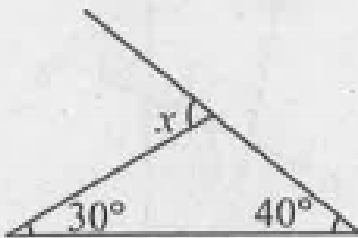
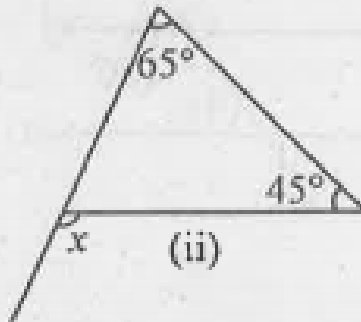
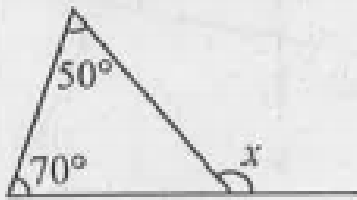
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3. Draw rough sketches for the following: In Triangle  $XYZ$ ,  $YL$  is a altitude in the exterior of the triangles.



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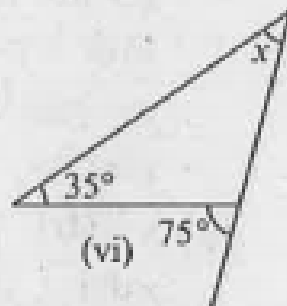
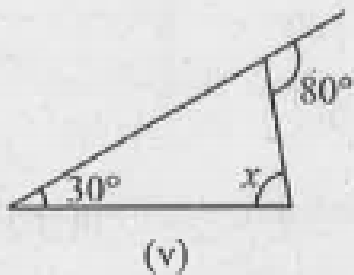
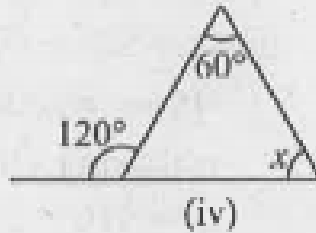
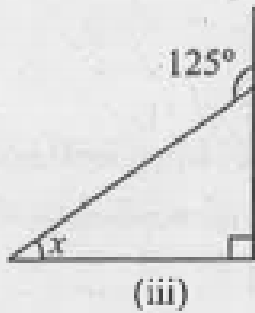
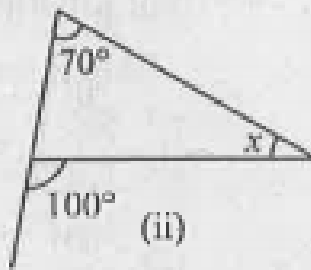
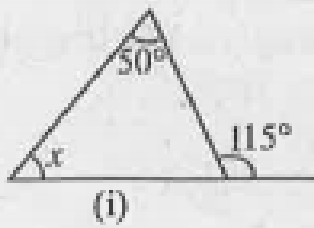
4. Find the value of the unknown exterior angle  $X$  in the following diagrams:





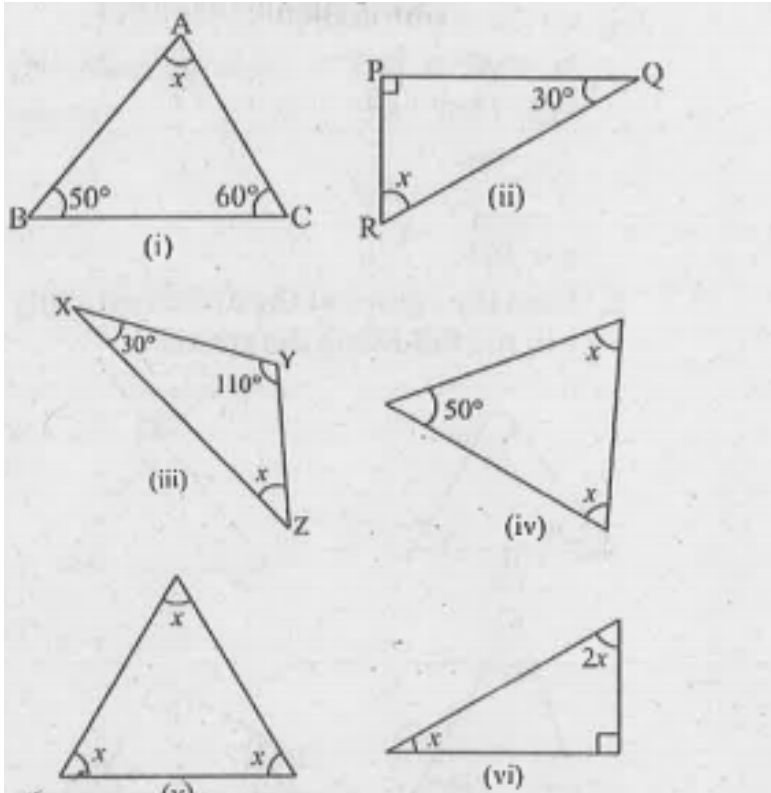
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5. Find the value of unknown interior angle  $x$  in the following figure.



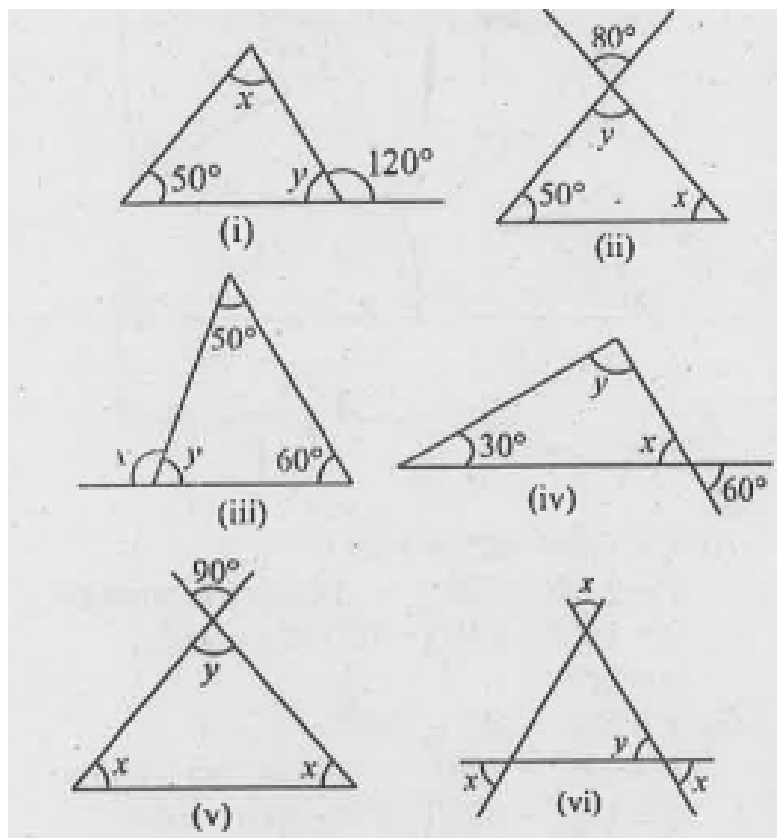
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6. Find the value of the unknown  $x$  in the following diagrams:



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7. Find the values of the unknown  $x$  and  $y$  in the following diagrams.



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8. Is it possible to have a triangle with the following sides: 2cm, 3cm, 5cm



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9. Is it possible to have a triangle with the following sides: 3cm, 6cm, 7cm



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10. Is it possible to have a triangle with the following sides: 6cm, 3cm, 2cm



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11. Take any point in the interior of a triangle

$PQR$ :  $OP + OQ > PQ$ ?



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12. Take any point in the interior of a triangle

$$PQR: OQ + OR > QR?$$



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13. Take any point in the interior of a triangle

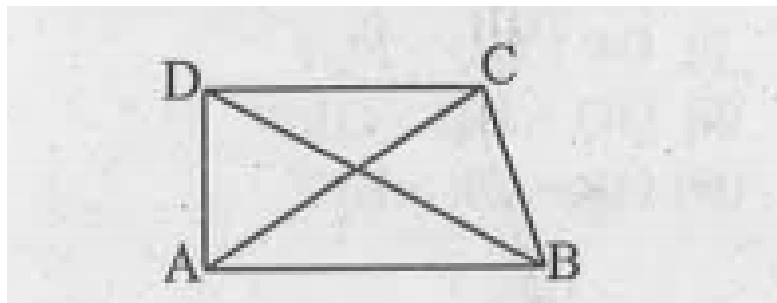
$$PQR: OR + OP > RP?$$



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14. ABCD is a quadrilateral. Is

$AB+BC+CD+DA > AC+BD$ ?



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15. ABCD is a quadrilateral. Is

$AB+BC+CD+DA > 2(AC+BD)$ ?

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**16.** The lengths of two sides of a triangle are 12cm and 15cm. Between what two measures should the length of the third side fall?



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**17.** PQR is a triangle, right angled at P. If  $PQ=10\text{cm}$  and  $PR=24\text{cm}$ , Find QR.



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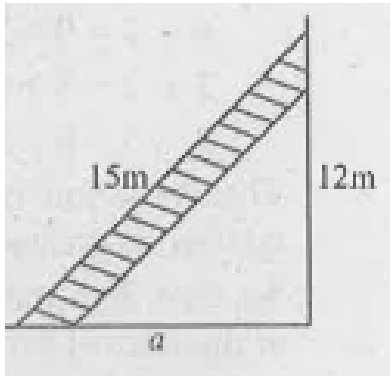
**18.** ABC is a triangle, right angled at C. If  $AB=25\text{cm}$  and  $AC=7\text{cm}$ , find BC.



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**19.** A 15 m long ladder reached a window 12m high from the ground on placing it against a wall at a distance a. Find the distance of the

foot of ladder from the wall.



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20. Which of the following can be the sides of a right triangle: 2.5cm, 6.5cm, 6cm. In the case of right-angled triangles, identify the right angles.



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21. Which of the following can be the sides of a right triangle: 2cm, 2cm, 5cm. In the case of right-angled triangles, identify the right angles.



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22. Which of the following can be the sides of a right triangle: 1.5cm, 2cm, 2.5cm. In the case

of right-angled triangles, identify the right angles.



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**23.** A tree is broken at a height of 5m from the ground and its top touches the ground at a distance of 12m from the base of the tree. Find the original height of the tree?



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24. Angles Q and R of a  $\triangle PQR$  are  $25^\circ$  and  $65^\circ$ . Write which of the following is true:

.  $PQ^2 + QR^2 = RP^2$

A. 2.  $PQ^2 + RP^2 = QR^2$ .

B. 3.  $RP^2 + QR^2 = PQ^2$ .

C.

D.

**Answer:**



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**25.** Angles Q and R of a  $\triangle PQR$  are  $25^\circ$  and  $65^\circ$ . Write which of the following is true:

$$PQ^2 + RP^2 = QR^2.$$



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**26.** Angles Q and R of a  $\triangle PQR$  are  $25^\circ$  and  $65^\circ$ . Write which of the following is true:

$$RP^2 + QR^2 = PQ^2.$$



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**27.** Find the perimeter of the rectangle whose length is 40cm and a diagonal is 41cm.



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**28.** The diagonals of a rhombus measure 16 cm and 30cm. Find its perimeter.



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