7

The Triangle And Its Properties

7th Standard

Mathematics

Exam Time : 00:01:00 Hrs
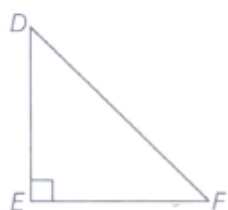
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Total Marks : 1

138 x 1 = 138

</div>

1) The sides of a triangle have length (in cm) 10, 6.5 and a, where a is a whole number. The minimum value that a can take is

(a) 6   (b) 5   (c) 3   (d) 4

2) In the given figure, DEF is a right angled triangle with $\angle E = 90^0$ What type of angles are $\angle D$ $and \angle F$?
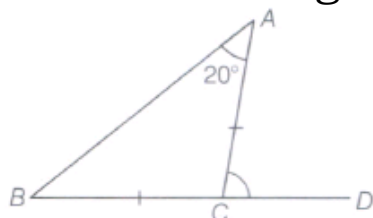

(a) They are equal angles   (b) They form a pair of adjacent angles

(c) They are complementary angles   (d) They are supplementary angles

3) The perimeter of the rectangle whose length is 40 cm and a diagonal is 41 cm, is

(a) 42 cm   (b) 49 cm   (c) 89 cm   (d) 98 cm

4) In the following figure, BC = CA and $\angle A = 20$, $then \angle ACD$ is equal to
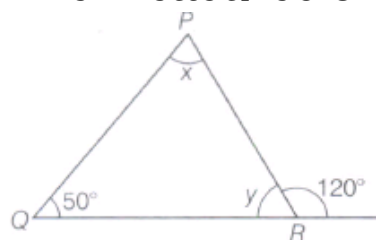

(a) 30°   (b) 40°   (c) 60°   (d) 80°

5) If the exterior angle of a triangle is 130° and its interior opposite angles are equal, then measure of each interior opposite angle is

(a) 55°   (b) 65°   (c) 50°   (d) 60°

6) In a $\triangle ABC$ if $\angle A = 60^0$ and $\angle B = 30^0$ then the exterior angle formed by producing BC is equal to

(a) 180°   (b) 99°   (c) 90°   (d) 105°

7) The measures of $\angle X$ and $\angle Y$ in the given figure are, respectively

(a) 30°,60°   (b) 40°,40°   (c) 70°,70°   (d) 70°,60°
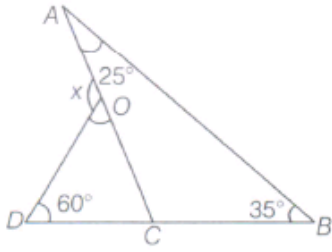
8) In a right angled $\triangle ABC$,if $\angle B = 90^0$ BG = 3cm and AC = 5 cm, then the length of side AB is

(a) 3 cm   (b) 4 cm   (c) 5 cm   (d) 6 cm

9) Which of the following cannot be the length of the third side of a triangle, whose two sides measure 10 cm and 5 cm?
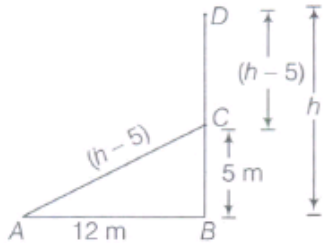
(a) 12 cm   (b) 16 cm   (c) 14 cm   (d) 13 cm

10) In the given figure, find the value of x.

(a) 75° (b) 90° (c) 120° (d) 60°

11) The top of a broken tree touches the ground at a distance of 12 m from its base. If the tree is broken at a height of 5 m from the ground, then the actual height of the tree is

(a) 25 m (b) 13 m (c) 18 m (d) 17 m

12) In a$\triangle ABC$, AD is the bisector of $\angle A$ meeting BC at D,CF⊥AB and E is the mid-point of AG. Then, median of the triangle is

(a) AD (b) BE (c) FC (d) DE

13) In a triangle ABC,$\angle$A+, $\angle$B+, $\angle$C=

(a) 360° (b) 90° (c) 180° (d) 60°

14) Least number of possible acute angles in a triangle is:

(a) 0 (b) 1 (c) 2 (d) 3

15) Angles of a triangle are in the ratio 1 : 2 : 3. The smallest angle is :

(a) 15° (b) 90° (c) 60° (d) 30°

16) How many altitudes can a triangle have?

(a) one (b) two (c) three (d) four

17) The exterior angle of a triangle is 120° and one of its interior opposite angle is 70°. Find the measure of its other interior opposite angle?

(a) 90° (b) 50° (c) 60° (d) 100°

18) The angles of a triangle are in the ratio 2 : 3 : 5. What is the largest angle of the triangle?
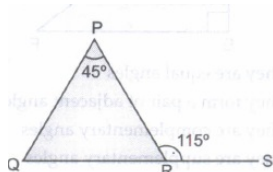
(a) 54° (b) 36° (c) 90° (d) 100°

19) ΔABC is right-angled at C. If AC = 5 em and BC = 12 cm, what is the length of AB?

(a) 7 cm (b) 17 cm (c) 13 cm (d) 20 cm

20) ΔABC≅ΔDEF.If AB= 7 cm,what is the length of DE?
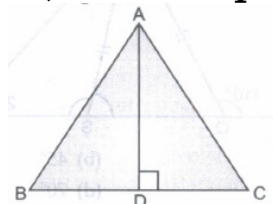
(a) 14 cm (b) 16 cm (c) 7 cm (d) 18 cm

21) In Fig. side QR of a $\angle$PQR has been produced to the point S. If$\angle$PRS = 115°and $\angle$P= 45°, then $\angle$is equal to,

(a) 70° (b) 105° (c) 51° (d) 80°

22) In an equilateral triangle ABC, AD is an altitude. Then $4AD^2$ is equal to :

(a) $2BD^2$ (b) BC^2 (c) $3AB^2$ (d) $2CD^2$

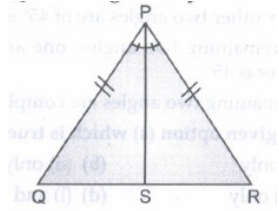23) Which of the following cannot be the sides of a triangle?

(a) 3 cm, 4 cm, 5 cm   (b) 2 cm, 4 cm, 6 cm   (c) 2.5 cm, 3.5 cm, 4.5 cm

(d) 2.3 cm, 6.4 cm, 5.2 cm

24) Which one of the following is not a criterion for congruence of two triangles?
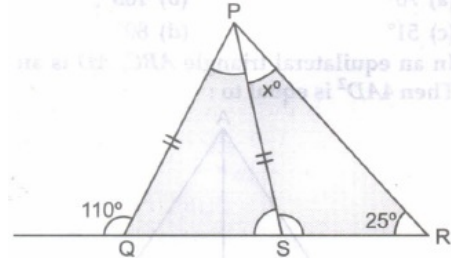
(a) ASA   (b) SSA   (c) SAS   (d) SSS

25) PS is the bisector of $\angle$P and PQ = PR. Then $\triangle PRS$ and $\triangle PQS$ are congruent by the criterion:

(a) AAA   (b) SAS   (c) ASA   (d) both (b) and (c)

26) PQ = PS. The value of x is:

(a) 35°   (b) 45°   (c) 55°   (d) 70°

27) In a right-angled triangle, the angles other than the right angle are:

(a) obtuse   (b) right   (c) acute   (d) straight

28) In an isosceles triangle, one angle is 70°. The other two angles are of :
(i) 55°and 55°   (ii) 70°and 40°   (iii) any measure
In the given option(s) which of the above statement (s) are true?

(a) (i) only   (b) (ii) only   (c) (ill) only   (d) (i) and (ii)

29) In a triangle, one angle is of 90°. Then:
(i) The other two angles are of 45°each
(ii) In remaining two angles, one angle is 90° and other is 45°
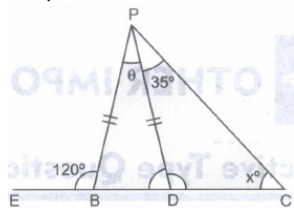(iii)Remaining two angles are complementary
In the given option (s) which is true?

(a) (i) only   (b) (ii) only   (c) (iii) only   (d) (i) and (ii)

30) Lengths of sides of a triangle are 3 cm, 4 cm and 5 cm, The triangle is :

(a) Obtuse angled triangle   (b) Acute-angled triangle   (c) Right-angled triangle

(d) An Isosceles right triangle

31) PB = PD. The value of x is :

(a) 85°   (b) 90°   (c) 25°   (d) 35°

32) In ΔPQR,

(a) PQ-QR > PR   (b) PQ + QR < PR   (c) PQ- QR < PR   (d) PQ + PR < QR

33) In Δ ABC ,

(a) AB + BC > AC   (b) AB + BC < AC   (c) AB + AC < BC   (d) AC + BC < AB

34) The triangle ABC formed by AB = 5 cm, BC = 8 cm, AC = 4 cm is:

(a) an isosceles triangle only   (b) a scalene triangle only   (c) an isosceles right triangle

(d) scalene as well as a right triangle

35) Two trees 7 m and 4 m high stand upright on a ground. If their bases (roots) are 4 m apart, then the distance between their tops is :

(a) 3 m (b) 5 m (c) 4 m (d) 11 m

36) If in an isosceles triangle, each of the base angles is 40°.Then the triangle is:

(a) Right-angled triangle (b) Acute angled triangle (c) Obtuse angled triangle

(d) Isosceles right-angled triangle

37) If two angles of a triangle are 60° each, then the triangle is:

(a) Isosceles but not equilateral (b) Scalene (c) Equilateral (d) Right-angled

38) The perimeter of the rectangle whose length is 60 cm and a diagonal is 61 cm is:

(a) 120 cm (b) 122 cm (c) 71 cm (d) 142 cm

39) In $\triangle$PQR, if PQ = QR and $\angle$Q= 100°,then $\angle$R is equal to:

(a) 40° (b) 80° (c) 120° (d) 50°

40) Which of the following statements is not correct?

(a) The sum of any two sides of a triangle is greater than the third side

(b) A triangle can have all its angles acute

(c) A right-angled triangle cannot be equilateral

(d) Difference of any two sides of a triangle is greater than the third side

41) BC = CA and $\angle$A = 40°. Then, $\angle$ACD is equal to
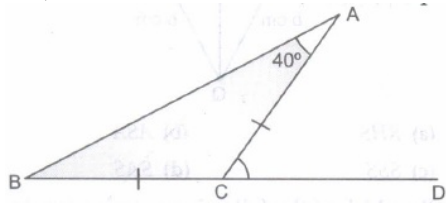
(a) 40° (b) 80° (c) 120° (d) 60°

42) The length of two sides of a triangle are 7 cm and 9 cm. The length of the third side may lie between:
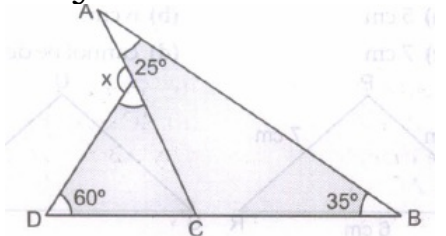
(a) 1 cm and 10 cm (b) 2 cm and 8 cm (c) 3 cm and 16 cm (d) 1 cm and 16 cm

43)

The value of x is :
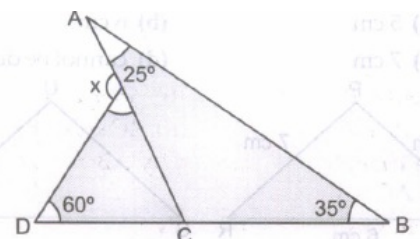
(a) 75° (b) 90° (c) 120° (d) 60°

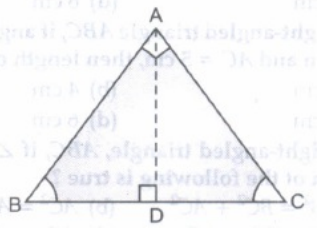44) The value of $\angle$A + $\angle$B + $\angle$C + $\angle$D + $\angle$E + $\angle$F is :
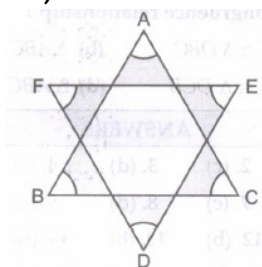
(a) 190° (b) 540° (c) 360° (d) 180°

45) PR, RS = RQ and ST || QR. If the exterior angle RPU is 140°, then the measure of TSR is :
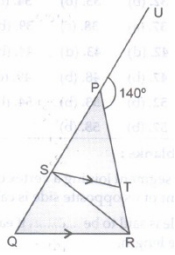
(a) 55° (b) 40° (c) 50° (d) 45°

46) ∠BAC = 90°, AD ⊥ BC and ∠BAD = 50°, then∠ACD is:

(a) 50° (b) 40° (c) 70° (d) 60°

47) If one angle of a triangle is equal to the sum of the other two angles, the triangle is :

(a) obtuse (b) acute (c) right (d) equilateral

48) If one of the angles of a triangle is 110°, then the angle between the bisectors of the other two angles is:

(a) 70° (b) 110° (c) 35° (d) 145°

49) In a△ABC, AD is the bisector of ∠A meeting BC at D,CF⊥ AB and E is the mid-point of AC. Then, median of the triangle is:

(a) AD (b) BE (c) FC (d) DE

50) Which of the following triplets cannot be the angles of a triangle?

(a) 67°,51°, 62° (b) 70°,83°, 27° (c) 90°,70°,20° (d) 40°,132°,18°

51) Which of the following can be the length of the third side of a triangle whose two sides measure 18 cm and 14 cm?

(a) 4 cm (b) 3 cm (c) 5 cm (d) 32 cm

52) If we join a vertex to a point on opposite side which divides that side in the ratio 1:1, then what is the special name of that line segment?

(a) Median (b) Angle bisector (c) Altitude (d) Hypotenuse

53) The measures of x and y in Fig. are respectively:
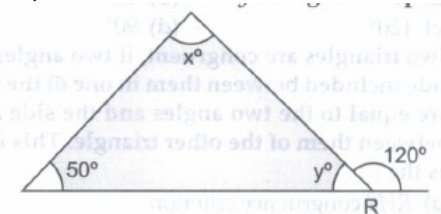
(a) 30°,60° (b) 40°,40° (c) 70°,70° (d) 70°,60°

54) If length of two sides of a triangle are 6 cm and 10 cm, then the length of the third side can be :

(a) 3 cm (b) 4 cm (c) 2 cm (d) 6 cm

55) In a right-angled triangle ABC, if angle B = 90°,BC = 3 cm and AC = 5 cm, then length of side AB is :

(a) 3 cm (b) 4 cm (c) 5 cm (d) 6 cm

56) In a right-angled triangle, ABC, if ∠B = 90°, then which of the following is true?

(a) $AB^2 = BC^2 + AC^2$ (b) $AC^2 = AB^2 + BC^2$ (c) AB = BC + AC (d) AC = AB + BC

57) In MEC, ∠A = 100°,AD bisects ∠A and AD ⊥ BC. Then, ∠B is equal to :

(a) 80° (b) 20° (c) 40° (d) 30°

58) In △ABC, ∠A= 50, ∠B = 70° and bisector of ∠C meets AB at D, measure of ∠ABC is?
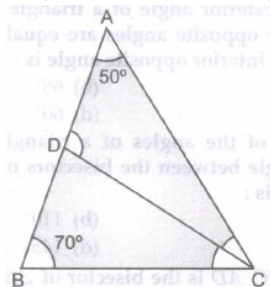
(a) 50° (b) 100° (c) 30° (d) 70°

59) If for △ABC and WEF, the correspondence CAB ↔ EDF gives a congruence, then which of the following is not true?

(a) AC = DE (b) AB = EF (c) ∠A = ∠D (d) ∠C = ∠E

60) M is the mid-point of both AC and BD. Then:
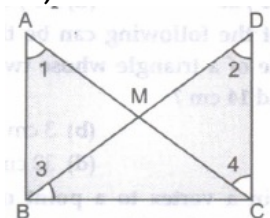
(a) ∠1=∠2 (b) ∠1=∠4 (c) ∠2=∠4 (d) ∠1=∠3

61) If D is the mid-point of the side BC in △ABC where AB = AC, then ∠ADC is :

(a) 60° (b) 45° (c) 120° (d) 90°

62) Two triangles are congruent, if two angles and the side included between them in one of the triangles are equal to the two angles and the side included between them of the other triangle. This is known as the:

(a) RHS congruence criterion (b) ASA congruence criterion

(c) SAS congruence criterion (d) AAA congruence criterion

63) By which congruency criterion, the two triangles are congruent?
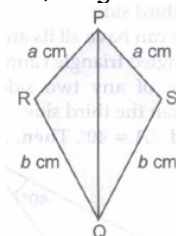
(a) RHS (b) ASA (c) SSS (d) SAS

64) By which of the following criterion two triangles cannot be proved congruent?

(a) AAA (b) SSS (c) SAS (d) ASA

65) If △PQR is congruent to △STU, then what is the length of TU?
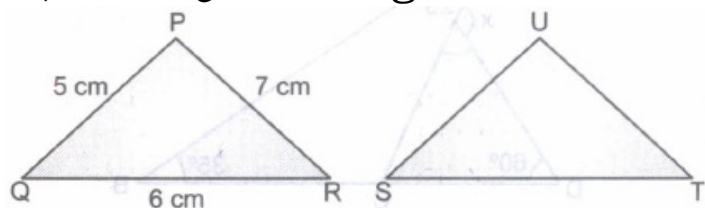
(a) 5 cm (b) 6 cm (c) 7 cm (d) cannot be determined

66) If △ABC and △DBC are on the same base BC, AB = DC and AC = DB, then which of the following gives a congruence relationship?

(a) △ABC≅△DBC (b) △ABC≅△CBD (c) △ABC≅△DCB (d) △ABC≅△BCD

67) In a right triangle, the side opposite to 90° is called_____

(a) hypotenuse (b) base

68) The perpendicular line-segment drawn from a vertex of a triangle to the opposite side is called its_____

(a) median (b) altitude

69) The line segment joining a vertex of a triangle to the mid-point of the opposite side is called its_____

(a) median   (b) altitude

70) A right triangle can have_____ right angle.

(a) one   (b) two

71) If the measure of each side of a triangle is the same, then the triangle is called an _____ triangle.

(a) equilateral   (b) isosceles

72) If the two sides of a triangle are equal then it is called an_____ triangle.

(a) equilateral   (b) isosceles

73) If all the sides of a triangle are unequal then it is called a_____ triangle

(a) similar   (b) scalene

74) In a triangle the sum of the length of any two sides can never be_____ than the length of the third side.

(a) less   (b) more

75) There can be only _____acute angle(S)of a triangle.

(a) three   (b) two

76) There can be only _____obtuse angle(S)of a triangle.

(a) one   (b) two

77) There can be only _____right- angle(S)of a triangle.

(a) one   (b) two

78) There can be only _____acute angle(S)of a right triangle.

(a) two   (b) three

79) 40°, 50°, and 80° _____be the angles of a triangle.

(a) can   (b) cannot

80) 30°, 90°, and 90° _____be the angles of a triangle.

(a) can   (b) cannot

81) 41°,49°, and 90° _____be the angles of a triangle.

(a) can   (b) cannot

82) 121°,29°, and 30° _____be the angles of a triangle.

(a) can   (b) cannot

83) 5cm, 3.8 cm, and 9.1 cm _____be the measures of the sides of a triangle.

(a) can   (b) cannot

84) 4.9 cm, 3.01 cm, and 2.7 cm_____ be the measures of the sides of a triangle.

(a) can   (b) cannot

85) 7 cm, 8 cm, and 9 cm _____be the measures of the sides of a triangle.

(a) can   (b) cannot

86) 2.8 cm, 8.2 cm, and 5.4 cm_____ be the measures of the sides of a triangle.

(a) can   (b) cannot

87) Maximum number of possible obtuse angles in a triangle is:

(a) 0   (b) 1   (c) 2   (d) 3

88) A triangle having two sides equal is:

(a) an equilateral triangle   (b) an isosceles triangle   (c) a scalene triangle

(d) a right-angled triangle

89) A triangle having one angle as obtuse is:

(a) an obtuse-angled triangle   (b) an acute-angled triangle   (c) a right-angled triangle

(d) none of these

90) In a right triangle if hypotenuse is H, perpendicular is P and base is B, then

(a) $B^2 = H^2 + P^2$ (b) $H^2 = P^2 + B^2$ (c) $H^2 = P^2 - B^2$ (d) $P^2 = B^2 + H^2$

91) Sum of all the interior angles of a triangle is

(a) 90° (b) 180° (c) 360° (d) 270°

92) In the adjoining figure, the ext. ∠ACD is equal to
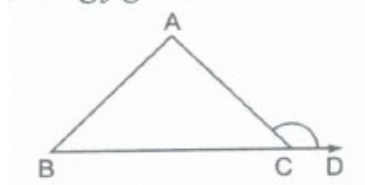
(a) ∠A   (b) ∠A + ∠B   (c) ∠A - ∠B   (d) ∠A + ∠C

93) The measure of each angle of an equilateral triangle is

(a) 30° (b) 60° (c) 45° (d) none of these

94) Which of the following is true?

(a) Each angle of a right triangle is 90°.

(b) Each angle of an equilateral triangle is 90°.

(c) Sum of all the three interior angles of a triangle is 180°.

(d) In a right triangle the length of hypotenuse is equal to sum of the lengths of the other two sides.

95) In an isosceles right triangle each of the acute angle is:

(a) 30° (b) 45° (c) 60° (d) 90°

96) In a triangle ABC, which of the following is true?

(a) AB + BC < CA   (b) AB + CA < BC   (c) AC + BC > AB   (d) AC + BC = AB

97) In the figure, ABCD is a rectangle. The length of the diagonal AC is
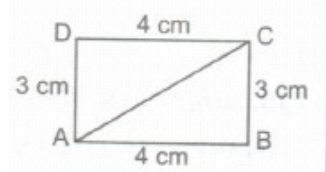
(a) 7 cm   (b) 25cm   (c) 5 cm   (d) $\sqrt{7}$

98) If the length of a side of a triangle is 15cm. The difference of other two sides of this triangle must be:

(a) equal to 15 cm   (b) more than 15 cm   (c) less than 15 cm   (d) 7.5 cm

99) How many elements are there in a triangle?

(a) 3 (b) 6 (c) 4 (d) None of these.

100) How many vertices does a triangle have?

(a) 1 (b) 2 (c) 3 (d) 4

101) How many sides are there in a triangle?

(a) 1 (b) 2 (c) 3 (d) 4

102) How many angles are there in a triangle?

(a) 1 (b) 2 (c) 3 (d) 4

103) If two sides of a triangle are not equal, the triangle is called

(a) scalene (b) isosceles (c) equilateral (d) right-angled.

104) If two sides of a triangle are equal, the triangle is called

(a) isosceles (b) equilateral (c) scalene (d) right-angled.

105) If all the three sides of a triangle are equal, the triangle is called

(a) equilateral (b) right-angled (c) isosceles (d) scalene.

106) If all the angles of a triangle are acute, the triangle is called

(a) obtuse-angled (b) acute-angled (c) right-angled (d) none of these.

107) If one angle of a triangle measures 90°, the triangle is called

(a) acute-angled (b) obtuse-angled (c) right-angled (d) none of these.

108) If one angle of a triangle is obtuse, the triangle is called

(a) acute-angled (b) obtuse-angled (c) right-angled (d) none of these.

109) How many medians can a triangle have?

(a) 1 (b) 2 (c) 3 (d) 6

110) How many altitudes can a triangle have?

(a) 1 (b) 2 (c) 3 (d) 4

111) The total measure of the three angles of a triangle is

(a) 360° (b) 90° (c) 180° (d) none of these.

112) The measure of each angle of an equilateral triangle is

(a) 30° (b) 45° (c) 90° (d) 60°.

113) Which of the following statements is true?

(a) A triangle can have two right angles   (b) A triangle can have two obtuse angles

(c) A triangle can have two acute angles

(d) A triangle can have all the three angles less than 60°.

114) Which of the following statements is true?

(a) A triangle can have all the three angles equal to 60°.

(b) triangle can have all the three angles greater than 60°.

(c) The sum of any two angles of a triangle is always greater than the third angle.

(d) The difference between the lengths of any two sides of a triangle is greater than the length of the third side.

115) Which ofthe following statement is false?

(a) The sum of the lengths of any two sides of a triangle is less than the third side.

(b) In a right-angled triangle, the square on the hypotenuse = sum of the squares on the legs.

(c) If the Pythagorean property holds, the triangle must be right-angled.

(d) The diagonal of a rectangle produce by itself the same area as produced by its length and breadth.

116) Two angles of a triangle measure 90° and 30°. The measure of the third angle is

(a) 90° (b) 30° (c) 60° (d) 180°

117) The ratio of the measures of the three angles of a triangle is 2 : 3 : 4. The measure of the largest angle is

(a) 80° (b) 60° (c) 40° (d) 180°.

118) In the following figure, the side BC of
Δ ABC is extended up to the point D. If A = 55° and ∠ B = 60°, then the measure of Δ ACD is
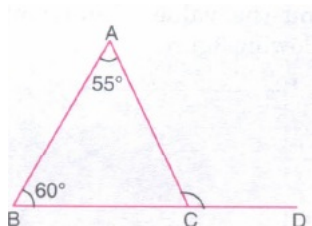
(a) 120° (b) 110° (c) 115° (d) 125°.

119) In the following figure, the measure of ∠A is
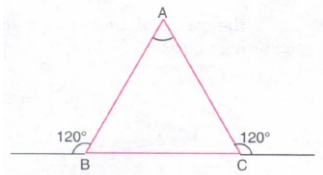
(a) 30° (b) 45° (c) 90° (d) 60°.

120) In the following figure, the measure of ∠A is
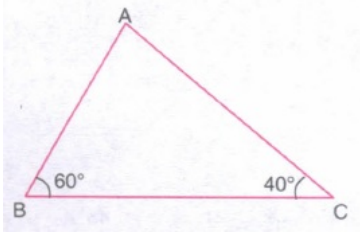
(a) 70° (b) 90° (c) 80° (d) 100°.

121) In the following figure, m II QR. Then, the measure of ∠QPR is
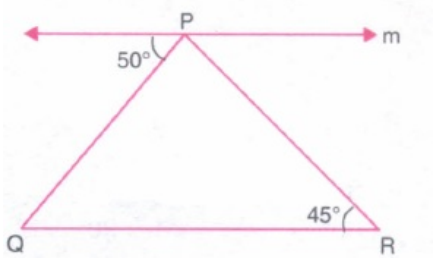
(a) 80° (b) 85° (c) 75° (d) 70°.

122) In the following figure, find ∠x and ∠y, if ∠x - ∠Y = 10°
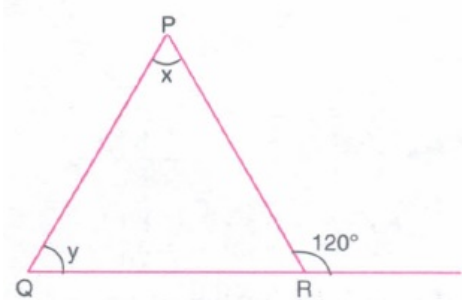
(a) 65°,55° (b) 55°,45° (c) 45°,35° (d) 60°, 60°.

123) In the following figure, find ∠ B.
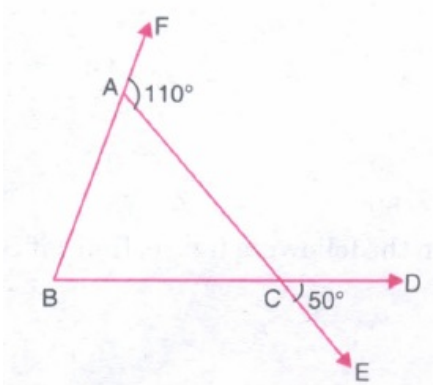
(a) 30° (b) 45° (c) 40° (d) 60°

124) In the following figure, △ABC is an equilateral triangle. Find∠ x.
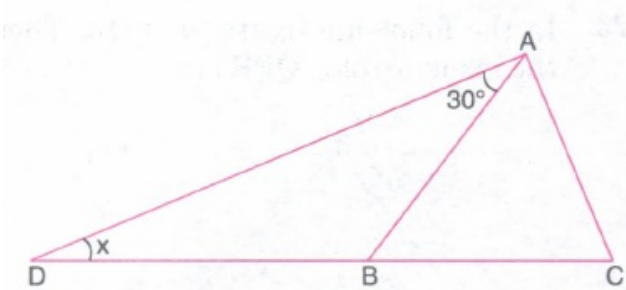
(a) 30° (b) 45° (c) 60° (d) 90°.

125) In the following figure, one angle of triangle ABC is 40°. If the difference of the other two angles is 30°,find the larger of the other two angles.
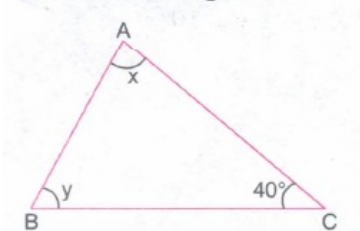
(a) 85° (b) 80° (c) 75° (d) 70°

126) In the following figure, find x.
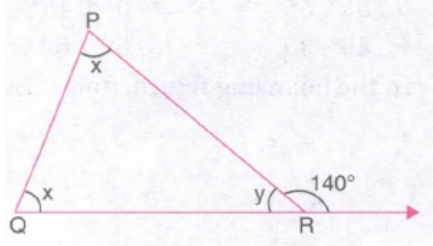
(a) 60° (b) 70° (c) 80° (d) 75°.

127) In the following figure, find x if BA || CE.
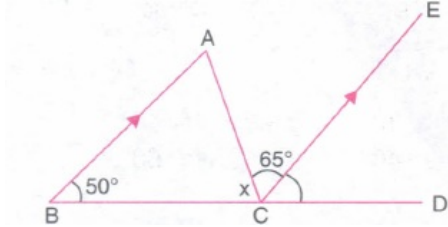
(a) 60° (b) 40° (c) 45° (d) 65°

128) Find the value of the unknown interior angle x in the following figure:
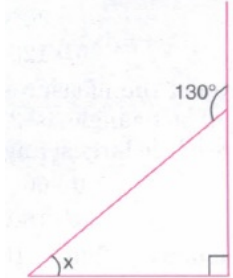
(a) 30° (b) 35° (c) 40° (d) 45°.

129) Find the value of unknown x in the following figure:
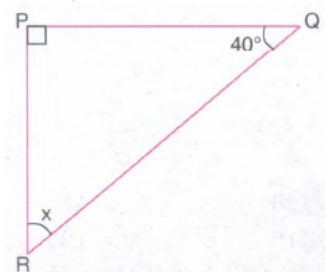
(a) 40° (b) 50° (c) 45° (d) 55°

130) Find the value of unknown x in the following figure:
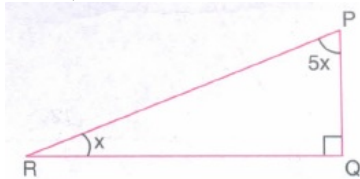
(a) 10° (b) 15° (c) 20° (d) 25°.

131) Find angle x in the following figure:

(a) 90° (b) 80° (c) 95° (d) 100°

132) Find angle x in the following figure:
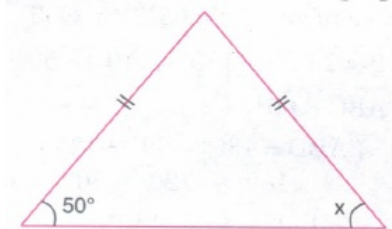
(a) 40° (b) 50° (c) 45° (d) 60°.

133) Find angle x in the following figure:
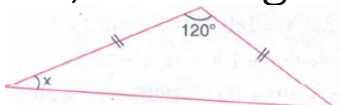
(a) 40° (b) 30° (c) 25° (d) 35°.

134) Find angle x in the following figure:
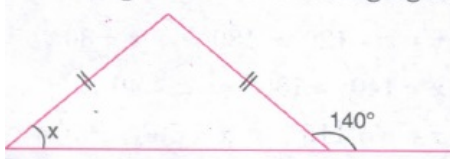
(a) 40° (b) 45° (c) 35° (d) 50°

135) Find angle x in the following figure:
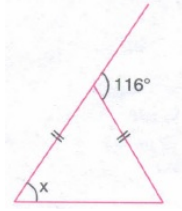
(a) 58° (b) 59° (c) 57° (d) 56°

136) Find angle x in the following figure:
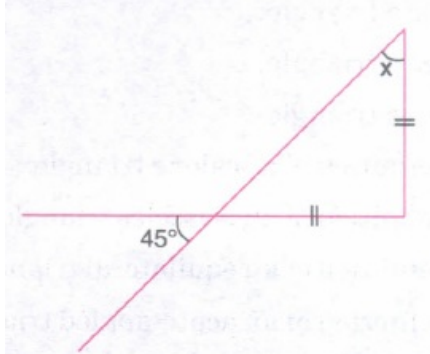
(a) 45° (b) 40° (c) 35° (d) 50°

137) In which ease of the following lengths of sides of a triangle, is it possible to draw a triangle?

(a) 3 cm, 4 cm, 7 cm (b) 2 cm, 3 cm, 7 cm (c) 3 cm, 4 cm, 5 cm

(d) 3 cm, 3 cm, 7 cm

138) Which of the following cannot be the sides of a right triangle?

(a) 2 cm, 2 cm, 4 cm (b) 5 cm, 12 cm, 13 cm (c) 6 cm, 8 cm, 10 cm

(d) 3 cm, 4 cm, 5 cm

53 x 1 = 53

139) The line segment joining a vertex of a triangle to the mid-point of its opposite side is called its_____.

140) A triangle is said to be_____if each one of its sides are of the same length.

141) In the following figure, $\angle PRS = \angle QPR+$_____.
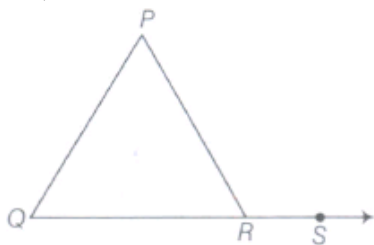
142) In the following figure, value of x is_____.
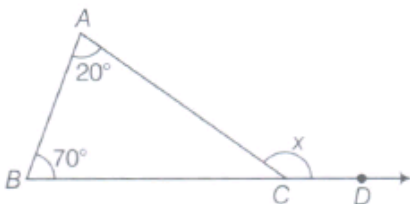
143) The sum of an exterior angle of a triangle and its adjacent angle is always_____.

144) Median is also called_____in an equilateral triangle.

145) In an isosceles triangle, angles opposite to equal sides are_____.

146) Measures of each of the angles of an equilateral triangle is_____.

147) If one angle of a triangle is equal to the sum of other two, then the measure of that angle is_____.

148) Every triangle has atmost_____obtuse angles.

149) In the adjacent figure, the value of x is_____.
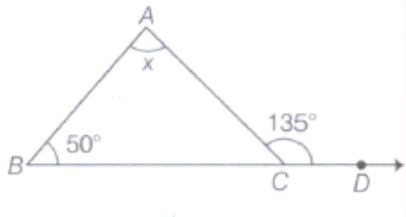
150) In the adjacent figure, the diagonals of ABCD are AC = 16cm, BD = 30 cm, then perimeter of the rhombus is equal to_____.
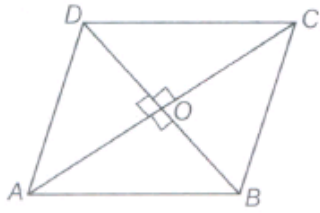
151) Let ABC and DEF be two triangles in which AB = DE, BC = FD and CA = EF. The two triangles are congruent under the correspondence
ABC↔_____

152) The _____ triangle always has altitude outside itself.

153) The longest side of a right angled triangle is called its_____.

154) In an isosceles triangle, two angles are always_____.

155) In an isosceles triangle, angles opposite to equal sides are_____.

156) Every triangle has at least _____ acute angle (s).

157) Two line segments are congruent, if they are of _____ lengths.

158) Two angles are said to be _____, if they have equal measures.

159) Two rectangles are congruent, if they have same _____ and_____.

160) Two squares are congruent, if they have same_____.

161) ΔPQR≅ Δ_____.

162) Δ PQR ≅ Δ_____.

163) Δ _____≅ΔPQR

164) Δ ARO ≅ Δ_____.
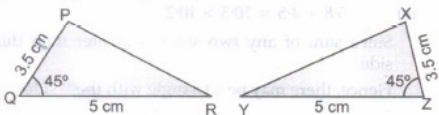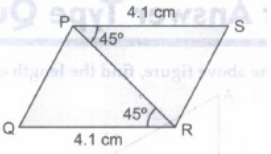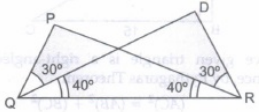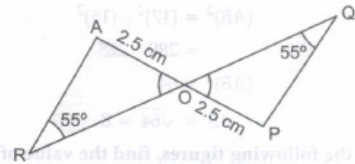
165) For a △ABC, ∠A + ∠B + ∠C =_____

166) 60°

167) In a right-angled triangle, two angles are acute and the measure of the third angle is_____.

168) An _____angle of a triangle is equal to the sum of the two interior opposite angles.

169) In △ABC, ∠ x=_____.
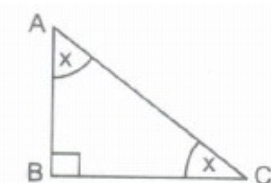
170) In △PQR, ∠ x=_____.
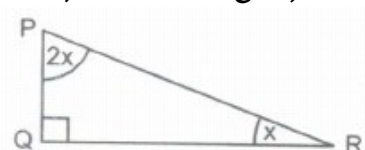
171) In △ABC, ∠ x=_____.
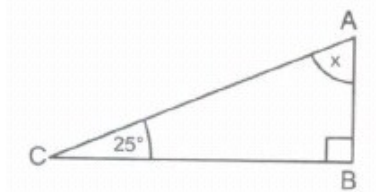
172) In △BCD, ∠ x=_____.
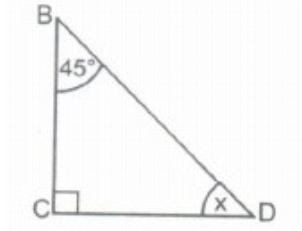
173) In the figure, ∠x=_____.
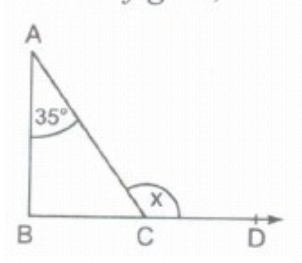
174) In △ABC, ∠x=_____.
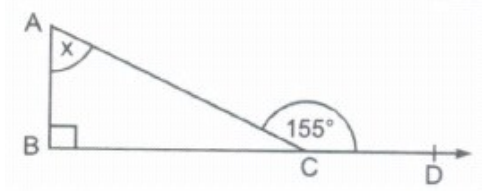
175) In the figure, ∠x=_____.
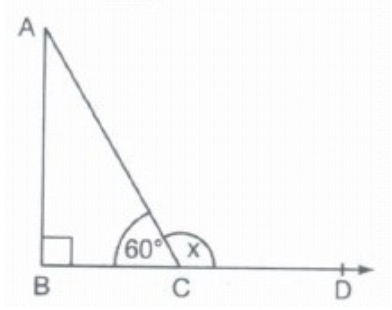
176) In the figure, ∠x=_____.
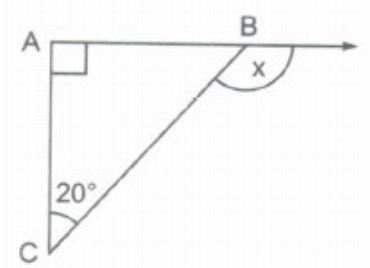
177) In the right triangle ABC, $AB^2 + BC^2$ = _____.
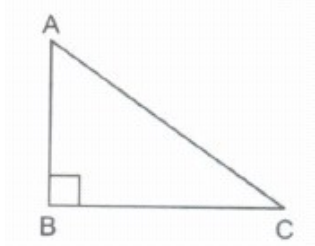
178) In △PQR, ∠P +∠ Q =_____.
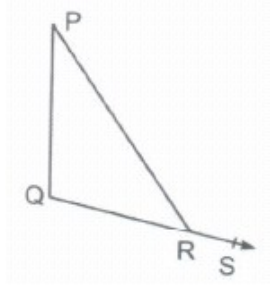
179) In the figure, ∠CAD =_____.
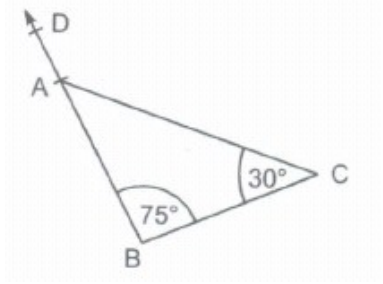
180) In the figure, ∠ACB=_____.
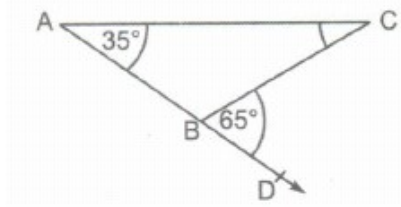
181) Can 5 cm, 3 cm, and 4 cm be the sides of a right triangle?

182) Can a triangle have one obtuse angle?

183) Can a triangle have more than three altitudes?

184) Can a triangle have two right angles?

185) In the adjoining figure,

∠A=_____

∠B=_____

∠C=_____
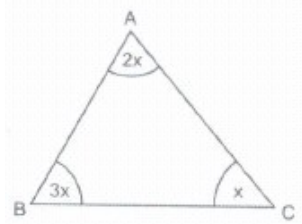
186) In the following figure, the measure of ∠x is_____.
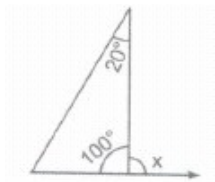
187) In the following figure, ∠A=_____
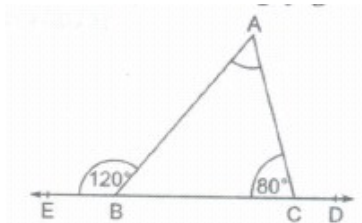
188) In the following right-angled triangle, the length of side BC is_____.
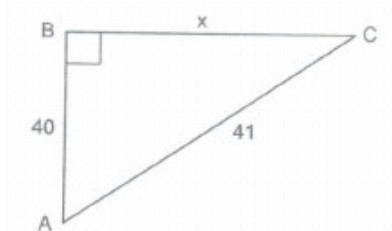
189) In a right triangle, hypotenuse is 'c' and legs are 'a' and 'b' then [_____]^2 +[_____]^2= [_____]^2

190) _____is the longest side in a right triangle.

191) The side opposite to_____ is called the hypotenuse of right-angled triangle.

10 x 1 = 10

192) Sum of any two angles of triangle is always greater than the third angle.

(a) True   (b) False

193) Sum of the measures of three angles of a triangle is greater than 180°.

(a) True   (b) False

194) It is possible to have a right angled equilateral triangle.

(a) True   (b) False

195) It is possible to have a triangle in which each angle is less than 60°.

(a) True   (b) False

196) The difference between the length of any two sides of a triangle is smaller than the length of third side.

(a) False   (b) True

197) In the following figure, the value of x = 60°.
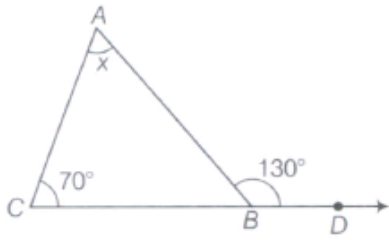
(a) False   (b) True

198) In the following figure, the value of x = 45°.
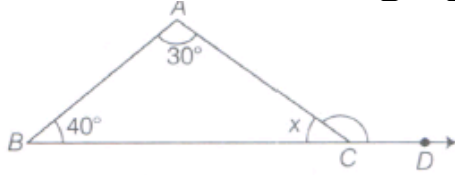
(a) True   (b) False

199) In the following figure, the value of x = 85°.
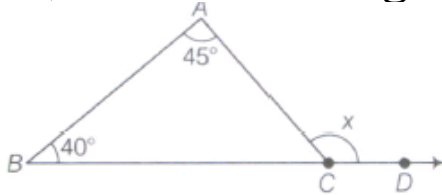
(a) False   (b) True

200) In the following figure, the value of y is equal to 90°.
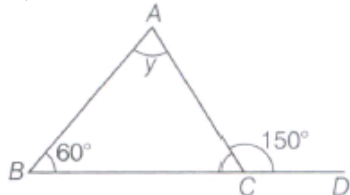
(a) False   (b) True

201) In the following figure, the value of x is equal to 9cm.
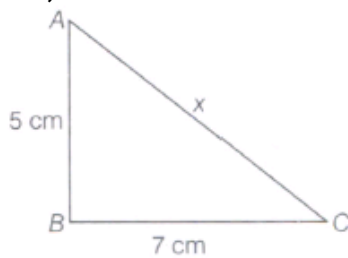
(a) True   (b) False

12 x 1 = 12

202) Sum of all three angles in a triangle is.   (1) 61 °

203) Sum of interior opposite angles is.   (2) 35°

204) Equilateral triangle have each angle equals to   (3) 65°

205) In a right angled triangle, atleast one angle should be equal to   (4) 30°

206) In a △ABC, ∠A = 120⁰, ∠B = 30⁰.The measure of ∠C is   (5) 40°

207) If an exterior angle of a triangle is 120°, then its adjacent interior angle is   (6) 60°

208) Sum of two angles of a triangle is 145°, The measure of third angle is   (7) 60°

209) In a right angled triangle, one of the acute angle is 25° The measure of the other acute angle is   (8) 180°

210) In a △ABC, LA = 100°, ∠B = 15°. The measure of ∠C is: (9) exterior angle

211) An exterior angle of a triangle is 100°, then its adjacent interior angle is: (10) 80⁰

212) Sum of two angles of a triangle is 119°. The measure of the third angle is   (11) 65°

213) In a right triangle, one of the acute angle is 50°. The measure of the other acute angle is: (12) 90°

8 x 1 = 8

214) Find the angles of a triangle which are in the ratio 2: 3: 5.

215) If two angles of a triangles are equal and the third angle measures 110°, then find the measure of each angle.

216) What is the name of side opposite to the angle 90° in a right angles triangle?

217) How many right angles does a right triangle has?

218) What do we call a triangle whose each angle is 60°?

219) In a right triangle, what is the measure of its greatest angle?

220) An exterior angle of a triangle is 140°. What is the measure of its interior adjacent angle?

221) What is the sum of angles of a triangle?

114 x 2 = 228

222) Look at the following given figures and classify each of the triangle according to its sides.

(a) 4 cm, A, 6 cm, B, 6 cm, C   (b) 4 cm, A, 4 cm, B, 4 cm, C
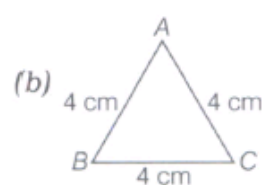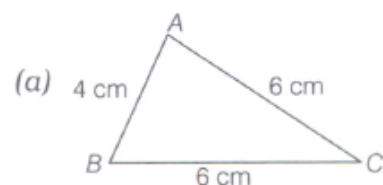
223) Classify the following triangles according to their angles.

(i) C 25°, 125°, A 30° B
(ii) A 55°, B 55°, 70° C
(iii) C 18°, A 72° 90° B
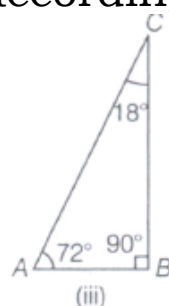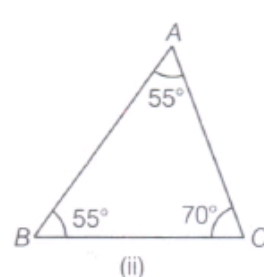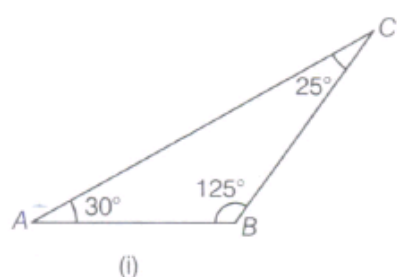
224) Draw rought sketches of △PQR,where QE is a median.

225) Draw rough sketch of altitude from A to $\overline{BC}$ for the following given triangles.
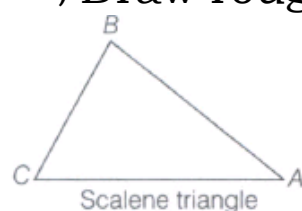
B, C, A — Scalene triangle

226) Draw rough sketch of altitude from A to $\overline{BC}$ for the following given triangles.

A, B, C — Right angled triangle
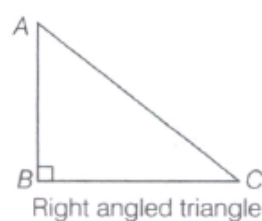
227) Write the six elements (i.e. the 3 sides and the 3 angles) of △ABC.

228) Write the
(i) side opposite to the vertex Q of △PQR.
(ii) angle opposite to the side LM of △LMN.
(iii) vertex opposite to the side RT of △RST.

229) Does a median lie wholly in the interior of the triangle? (If you think that this is not true, draw a figure to show such a case).

230) How many altitudes can a triangle have?

231) Draw rough sketches of altitudes from A to BC for the following triangles.

(i) A, B, C — Acute angled triangle
(ii) A, B, C — Right angled triangle
(iii) A, B, C — Obtuse angled triangle
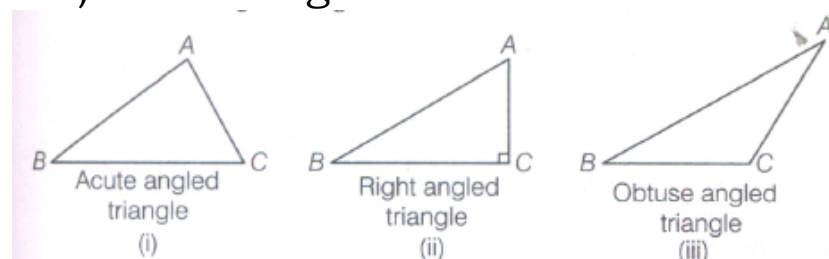
232) Will an altitude always lie in the interior of a triangle? If you think that this need not be true, draw a rough sketch to show such a case.

233) Can you think of a triangle in which two altitudes of the triangle are two of its sides?

234) Can the altitude and median be same for a triangle?

235) In $\triangle PQR$, D is the mid-point of QR.

PM is_____.

PD is_____.

Is QM =MR?
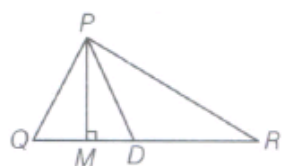
236) Classify the following triangle on the basis of sides.
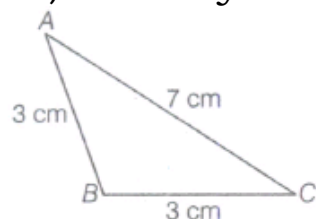
237) Classify the following triangle on the basis of angles.
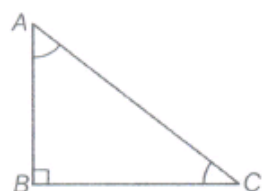
238) Name altitude of the following figure.
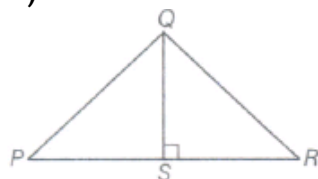
239) How many altitudes and medians can a triangle have?

240) Which triangle has same altitude and median?

241) An exterior angle of a triangle is of measure 70° and one of the interior opposite angle is of measure 35°. Find the measure of the other interior opposite angle.

242) The two interior opposite angles of an exterior angle of a triangle are 40° and 40°. Find the measure of the exterior angle.

243) Exterior angles can be formed for a triangle in many ways. Three of them are shown here (in following figures) :
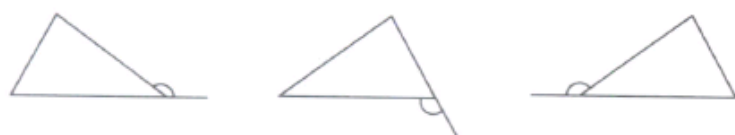
There are three more ways of getting exterior angles. Try to produce those rough sketches.

244) Are the exterior angles formed at each vertex of a triangle equal?

245) What can you say about the sum of an exterior angle of a triangle and its adjacent interior angle?

246) What can you say about each of the interior oppositeangles, when the exterior angle is

(i) a right angle?

(ii) an obtuseangle?

(iii) an acute angle?

247) Can the exterior angle of a triangle be a straight angle?

248) Find the value of x in the adjacent figure.
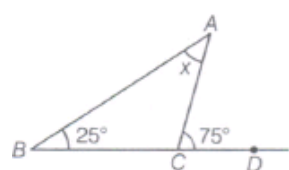
249) Find the value of x in the adjacent figure.
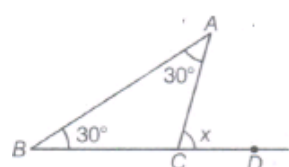
250) Find the value of x in the adjacent figure.
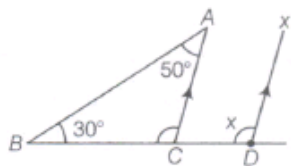
251) Find the value of angles a, band c in the following figure.
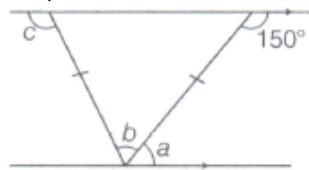
252) In the following figure, if ABIIDC, then find the value of $\angle X$.
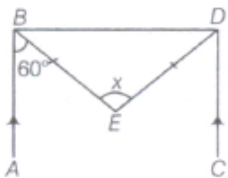
253) In the following figure, if PQllRS, then find the value of $\angle Z$.
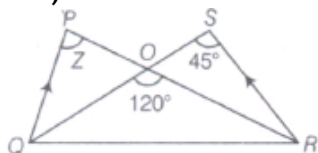
254) In the following interior figure, find the value of x.

255) Find all the sum of interior angles of a triangle, whose all measures are equal.

256) One angle of $\triangle ABC$ is 50° and the other two angles are equal. Find the value of eaeh equal angle.
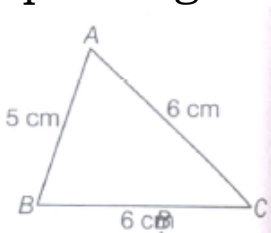
257) Check whether the following dimensions will represent the sides of a triangle, whose measures are 5 cm, 7 cm, 9 cm.

258) Find the value of the unknown x in the following diagrams.
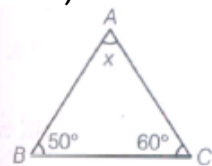
259) Find the value of the unknown x in the following diagrams.
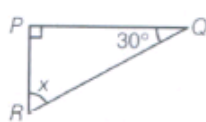
260) Find the value of the unknown x in the following diagrams.
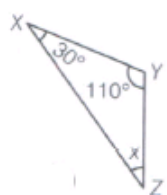
261) Find the value of the unknown x in the following diagrams.

262) Find the value of the unknown x in the following diagrams.
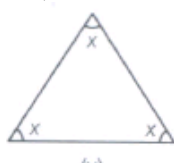
263) Find the value of the unknown x in the following diagrams.

264) Find the values of the unknown x and y in the following diagrams.
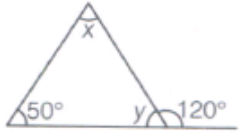
265) Find the values of the unknown x and y in the following diagrams.
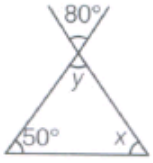
266) Find the values of the unknown x and y in the following diagrams.
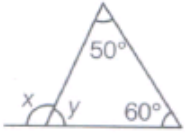
267) Find the values of the unknown x and y in the following diagrams.
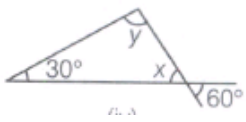
268) Find the values of the unknown x and y in the following diagrams.
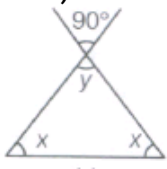
269) Find the values of the unknown x and y in the following diagrams.
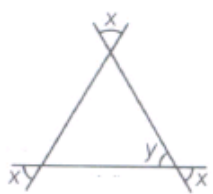
270) Two angles of a triangle are 30° and 80°. Find the third angle.

271) One of the angles of a triangle is 80° and the other two angles are equal. Find the measure of each of the equal angles.

272) The three angles of a triangle are in the ratio 1 : 2 : 1. Find all the angles of the triangle. Classify the triangle in two different ways.

273) Can you have a triangle with two right angles?

274) Can you have a triangle with two obtuse angles?

275) Can you have a triangle with two acute angles?

276) Can you have a triangle with all the three angles greater than 60°?

277) Can you have a triangle with all the three angles equal to 60°?

278) Can you have a triangle with all the three angles less than 60°?

279) Is it possible to have a triangle with the following sides?
2 cm,3 cm, 5cm

280) Is it possible to have a triangle with the following sides?
3 cm, 6 cm, 7 cm

281) Is it possible to have a triangle with the following sides?
6 cm, 3 cm. 2 cm

282) Is the sum of any two angles of a triangle always greater than the third angle?

283) In the following figure, find the value of x
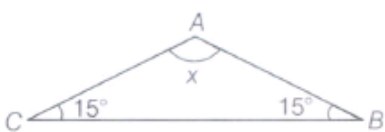
284) If the ratio of the angles of a triangle is 2 : 3 : 5, then find the angles.

285) If one of the angles of a triangle is 110° and other two angles are equal, then what is the value of other two angles?

286) In $\triangle XYZ, \angle X = 100^0$ XT bisects $\angle X \, and XT \perp YZ$.Find $\angle Y$.

287) Find the value of unknown length x in the following figures.
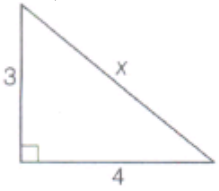
288) Which of the following can be the sides of a right triangle?
2.5 cm, 6.5 cm, 6 cm
In the case of right-angled triangles, identify the right angles.

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

290) Which of the following can be the sides of a right triangle?
1.5 cm, 2 cm, 2.5 cm In the case of right-angled triangles, identify the right angles.

291) Angles Q and R of a $\triangle PQR$ are 25° and 65°. Write which of the following is true?
(i) $PQ^2 + OR^2 = RP^2$
(ii) $PQ^2 + RP^2 = OR^2$
(iii) $RP^2 + QR^2 = PQ^2$
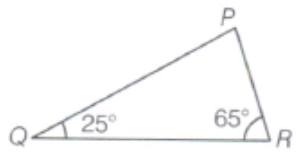
292) Which is the longest side in the $\triangle PQR$, right angled at P?

293) Which is the longest side in the $\triangle ABC$, right angled at B?

294) Which is the longest side of a right angled triangle?

295) Find the value of x in the following figure.
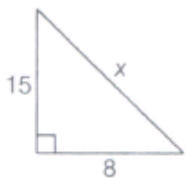
296) Find the value of x in the following figure.
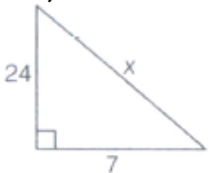
297) Find the value of x in the following figure.
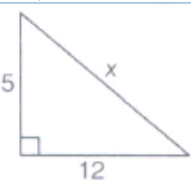
298) POR is an isosceles right angled triangle, right angled at R. If PR = 4, then find the value of PO.

299) Two buildings of height 10m and 18 m standing on opposite sides of a road. The distance between their bases is 15 m. Find the distance between their heights.

300) If the sides of a triangle is 10 m, 6 m and 5 m, state whether the triangle, so formed is a right angled triangle.

301) A ladder of length 10m resting on wall of height 8 m slips down such that it stop at a height 6 m from the ground. Then, find the distance of the new position of foot of the ladder from the base of the wall and from the original position of the foot of ladder.

302) Classify each of the following triangles according to its sides.
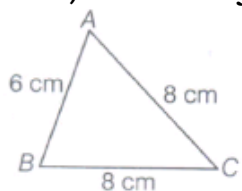
303) Classify each of the following triangles according to its sides.
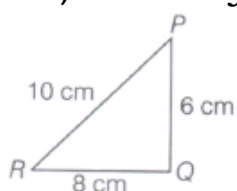
304) Classify each of the following triangles according to its sides.
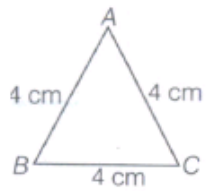
305) Draw rough sketch for each of the following:
In $\triangle ABC$, BD is a median.

306) Draw rough sketch for each of the following:
In $\triangle ABC$, BC and AC are altitudes of the triangle.

307) Find the value of the unknown exterior angle x in the following figures.
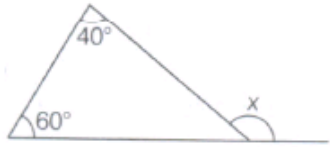
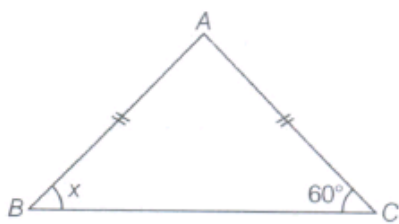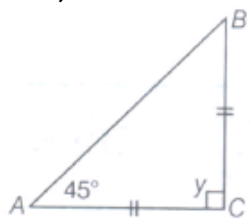**308)** Find the value of the unknown exterior angle x in the following figures.
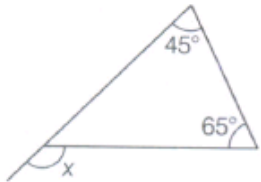
309) Find the values of the unknown interior angle in the following figures.
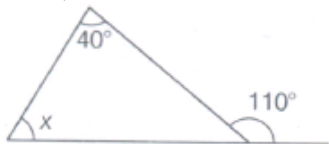
310) Find the values of the unknown interior angle in the following figures.
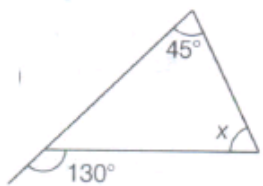
311) In the following figure, find the value of x.

312) In the following figure, find the value of y.

313) Find the value of x in the given rectangle ABCD.
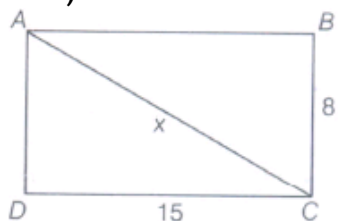
314) Find the value of x in the following figure.
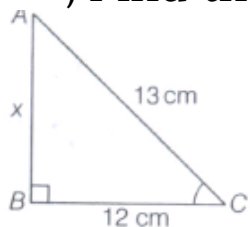
315) The measures of three angles of a triangle are in the ratio 2 : 3 : 1. Find the measures of these angles.

316) State whether the following triangle exists.
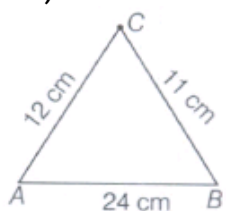
317) the following figure, find the value of x.
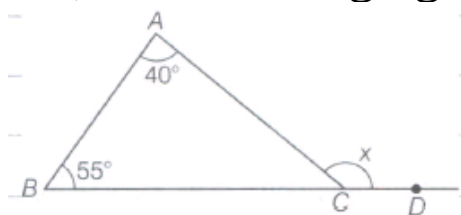
318) In the following figure, what will be the value of x?
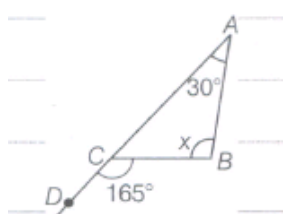
319) In the following figure, find the value of x.
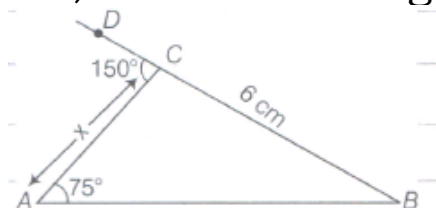
320) In the following figure, find the value of x.
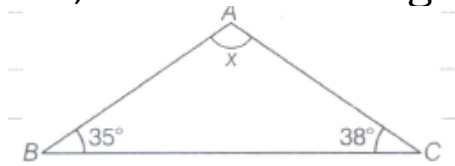
321) In the foliowingJigure, find the value of x, if $\angle B = 90^0$.
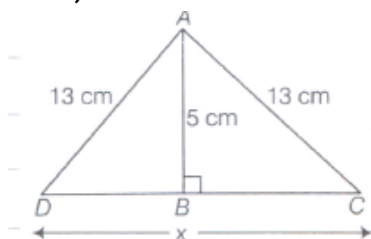
322) In the adjoining figure, find the measure of angle x.
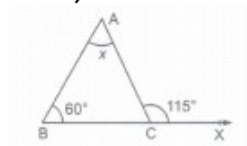
323) In the adjoining figure, find the measure of the exterior angle $\angle$ x.
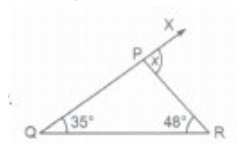
324) Find their altitude and medians. Do you find anything special about them?
EQUILATERAL TRIANGLE

325) Find their altitude and medians. Do you find anything special about them?
ISOSCELES TRIANGLE

326) Find the unknown length x in the following figures:
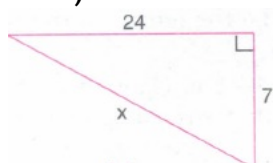
327) In the above figure, find the length of side AB.
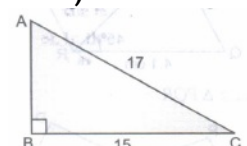
328) In the following figures, find the value of x.

a)   b)
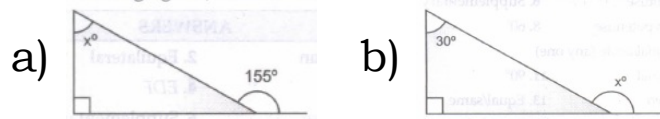
329) The acute angles of a right angled triangle are in the ratio of 1: 2. Find the values of acute angles.

330) If two angles of a triangle are equal and third angle is of 110°. Find the equal angles.

331) Is there a triangle whose sides have lengths 10·2 cm, 5·8 cm and 4·5 cm?

332) Find the value of the unknown x in the adjoining figure.

333) Find the measure of each angle in the adjoining figure.
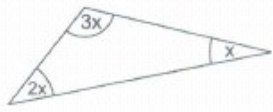
334) Two angles of a triangle are 30° and 70°. Find the third angle.

335) If one of the angles is 50° and other two angles are equal. Find the measure of each of the equal angles.

74 x 3 = 222

336) How many medians can a triangle have?

337) Draw rough sketches for the following:
(a) In $\triangle ABC$,BE is a median.
(b) In $\triangle PQR$,PO and PR are altitudes of the triangle.
(c) In $\triangle XYZ$,YL is an altitude in the exterior of the triangle.

338) Verify by drawing a diagram, if the median and altitude of an isosceles triangle can be same.

339)
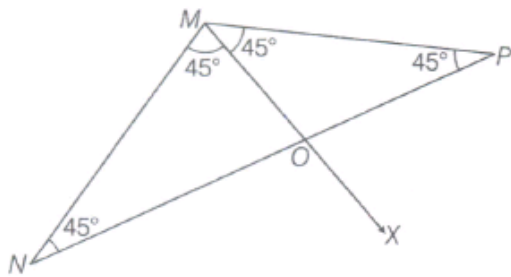
In the given $\triangle MNP$, a line from vertex M is drawn passing through the side NP at O, such that the measure of angles are given. What would be the other name for OM?

340)
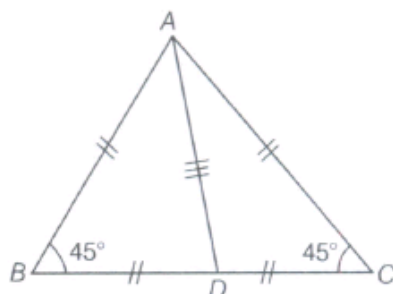
From the above figure, find the value of $\angle A$.

341)
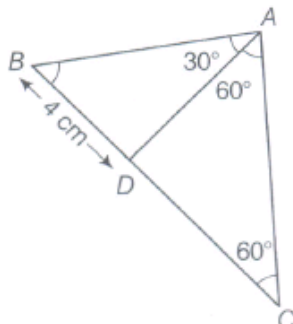
From the above figure, find the length of the side BC.

342) An exterior angle of a triangle is of measure 70°and one of its interior opposite angles is of measure 25°. Find the measure of the other interior opposite angle.

343) The two interior opposite angles of an exterior angle of a triangle are 60° and 80°. Find the measureof the exterior angle.

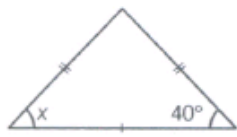**344)** Is something.wrongin this given diagram? Comment
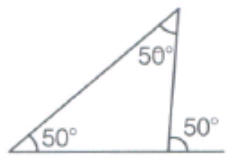
345) In the following figure, if DE‖BC, then find the value of $\angle X$.
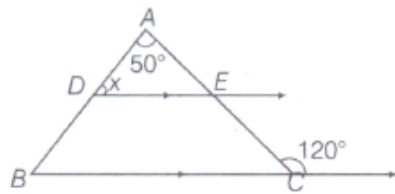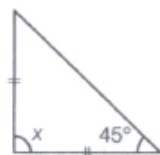

346) In the following figure, find the value of $\angle A + \angle B + \angle C$.
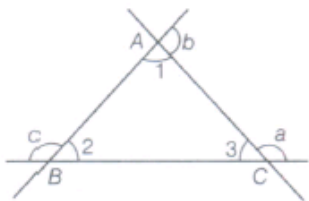
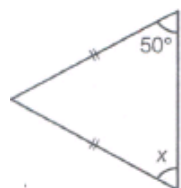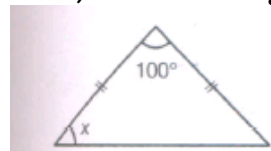**347)** Find angle x in each figure.
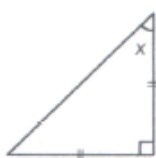

348) Find angle x in each figure.

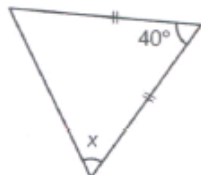**349)** Find angle x in each figure.
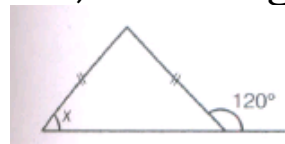

350) Find angle x in each figure.
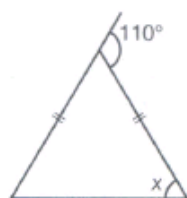

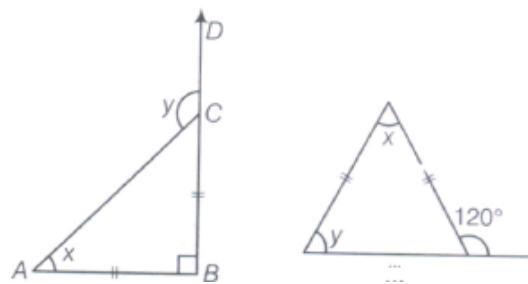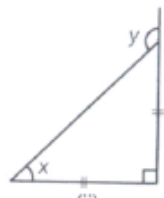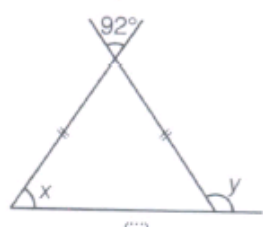**351)** Find angle x in each figure.

352) Find angle x in each figure.

353) Find angle x in each figure.

354) Find angle x in each figure.

355) Find angle x in each figure.

356) Find the angles x and y in each figure.

357) Find the angles x and y in each figure.

358) Find the angles x and y in each figure.

359) AM is a median of a $\triangle ABC$. Is AB + BC + CA > 2AM ?(Consider the sides of $\triangle ABM$ and $\triangle AMC$.
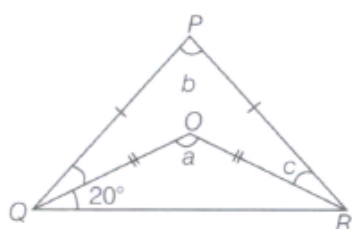

360) The lengths of two sides of a triangle are 12 cm and 15 cm. Between what two measures should the length of the third side fall?
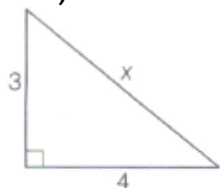
361) In the following figure, OQ and OR are internal bisectors of $\angle Q$ $and\angle R$,respectively, then prove that $\angle QOR = 90^0 + \frac{1}{2}\angle P$.
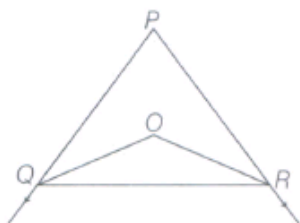
362) In the following figure,$\triangle PQR$ $and\triangle OQR$ are isosceles triangles and $\angle a = 2\angle b$.Find $\angle c$.
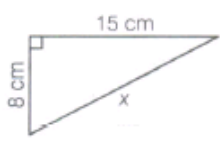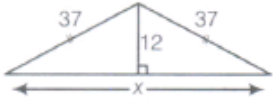

363) Find the unknown length x in the following figures.
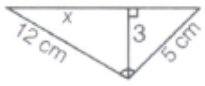

364) Find the unknown length x in the following figures.
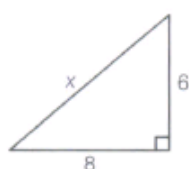
365) Find the unknown length x in the following figures.

366) Find the unknown length x in the following figures.

367) Find the unknown length x in the following figures.

368) PQR is a triangle, right angled at P. If PQ = 10 cm and PR= 24 cm, find OR.

369) ABC is a triangle, right angled at c. If AB = 25 cm and AC = 7 cm, then find BC.

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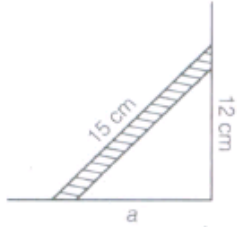

371) A tree is broken at a height of 5 m from the ground and its top touches the ground at a distance of 12 m from the base of the tree. Find the original height of the tree.
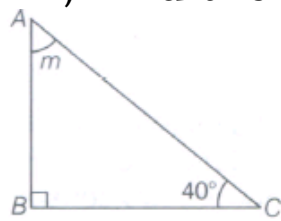
372) Find the perimeter of the rectangle whose length is 40 cm and a diagonal is 41 cm.

373) The diagonal of a rectangle produce by itself the same area as produced by its length and breadth'-This is Baudhayan Theorem. Compare it with the Pythagoras property.
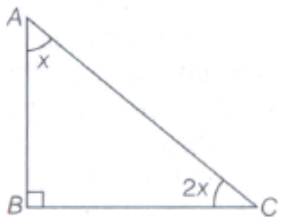
374) In the following figure, find the value of x.
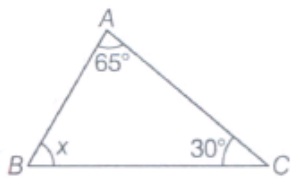
375) Find the value of m in the following figure.

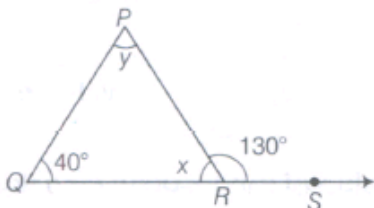**376)** In the following figure, find the value of $\angle ACB$.

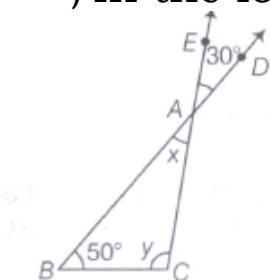**377)** (i) Write the side opposite to vertex B of $\triangle ABC$.
(ii) Write the angle opposite to side XY of $\triangle XYZ$.
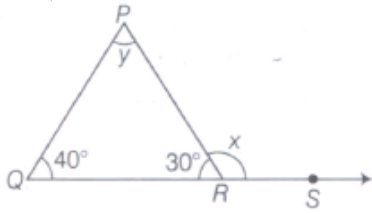(iii) Write the vertex opposite to the side PR of $\triangle PQR$.

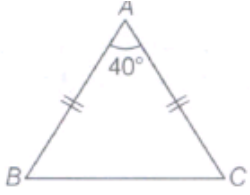**378)** In the following figure, find the values of x and y.

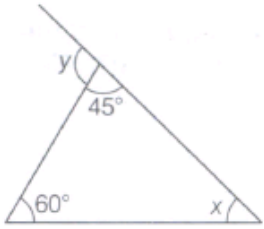**379)** In the following figure, find the values of x and y.

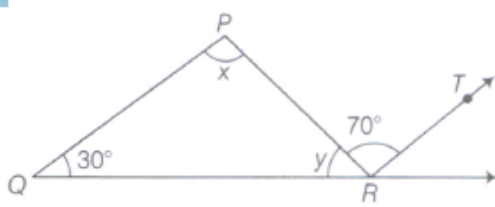**380)** In the following figure, find the value of 2x.

381) In the following figure, AB = AC. Find the measures of $\angle B$ and $\angle C$..
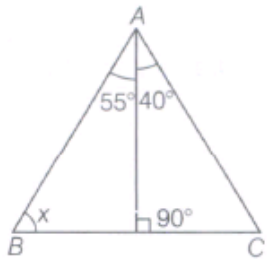
382) In the given figure, find the measures of $\angle X$ and $\angle Y$.

383) In the given figure, OP II RT. Find the value of x and y.

384) In the given figure, find the value of x.

385) In a $\triangle XYZ$, the measure of $\angle X$ is 30° greater than the measure of $\angle Y$ and $\angle Z$ is a right angle. Find the measure of $\angle Y$.

386) In a $\triangle ABC$ the measure of $\angle A$ is 40° less than the measure of $\angle B$ and 50° less than that of $\angle C$. Find the measure of $\angle A$.

387) Riya walks 6 km due East and then 8 km due North. How far is she from her starting place?

388) Megha drives 7 km North from a point, then takes a left and drives a distance of 15 km to reach her destination. What will be the least distance between the starting point and end point of her journey?

389) Of the three angles of a triangle, one is thrice the smallest and another is six times the smallest. Find the value of smallest angle and other angles.

390) In a right angled triangle, if an angle measure 30°, then find measure of the third angle.
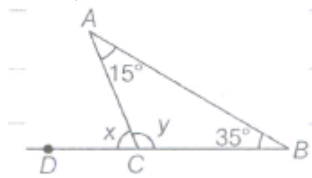
391) In the given figure, if y is five times x, find the value of z.
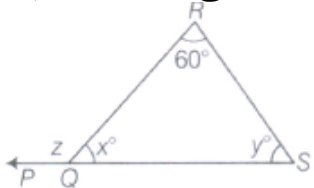
**392)** In the following figure, if ED II AB, determine the values of x and y.
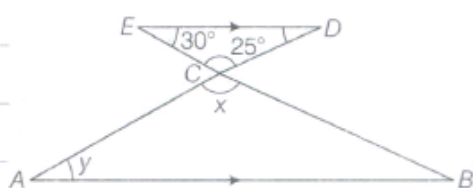
393) In the following figure, find the values of x and y.

394) I have three sides. One of my angle measure 15^0. Another has a measure of 60^0. What kind of a polygon am I? If I am a triangle, then what kind of triangle am I?

395) Jayanti takes shortest route to her home by walking diagonally across a rectangular park.The park measures 60 m x 80 m. How much shorter is the route across the park than the route around its edges?

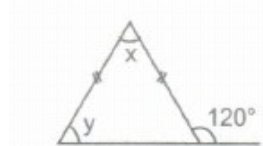396) In the following figure, find the values of x and y.

397)
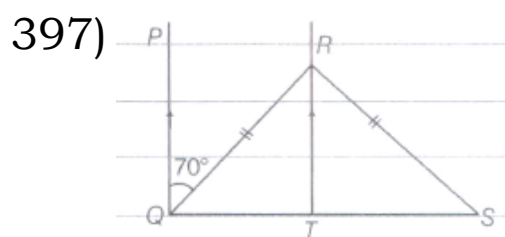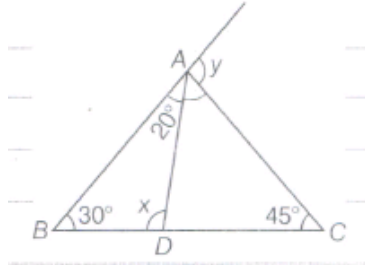
In the above figure, $\triangle QRS$ is an isosceles triangle, wherePQ || RT. Find the value of $\angle QRS$.
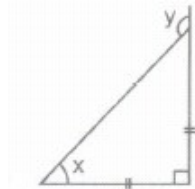
398) Find the unknowns length x in the following figures:
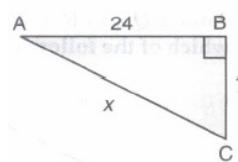
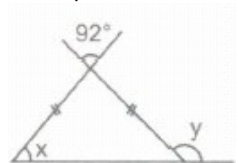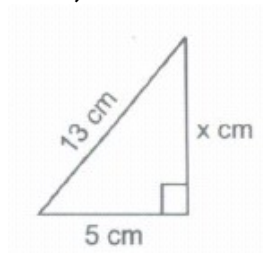399) Find angles x and y
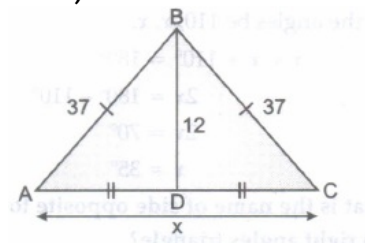

400) Find angles x and y

401) Find angles x and y

402) In the figure, $\triangle$ABC is right angled at B. If AB is 3 cm and BC = 4 cm, find the length of AC.
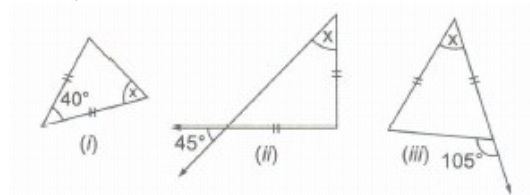
403) Find the value of x in the adjoining figure
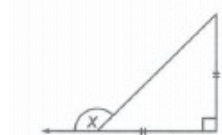

404) Find the value of x :

405) If two angles of a triangle are equal and the third angle measures 110°, then find the measure of each of unknown angles.

406) Three angles of a triangle are in the ratio of 2 : 3 : 4. Find all the angles of the triangle.
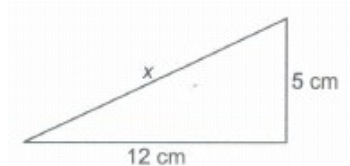
407) Find the value of x in each of the following figures:

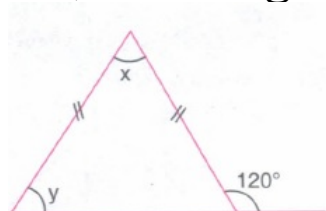408) Find the value of x in the adjoining figure.

409) Find the value of x in the adjoining figure.

5 cm

12 cm

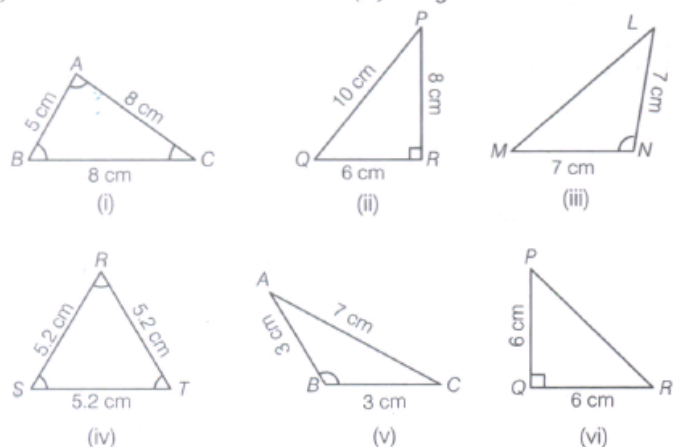1 x 4 = 4

410) Find angles x and y in each figure.
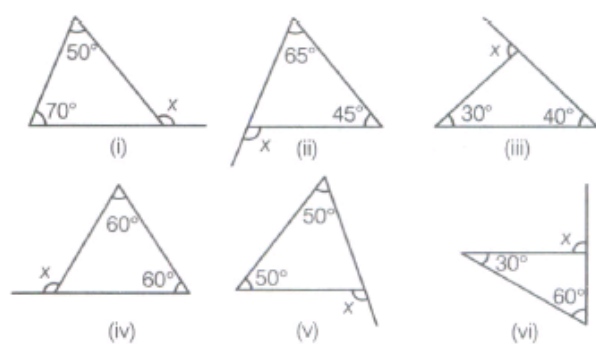

120°

50 x 5 = 250

411) Look at following figures and classify each of the triangles according to its
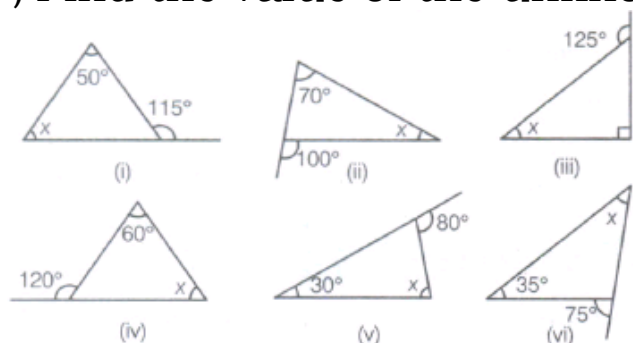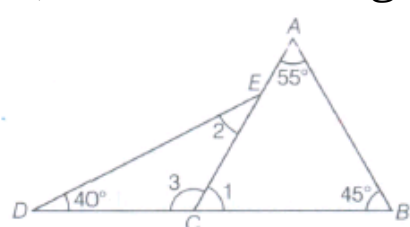
(a) sides   (b) angles

412) Find the value of the unknown exterior angle x in the following diagrams.

413) Find the value of the unknown interior angle x in the following figures.

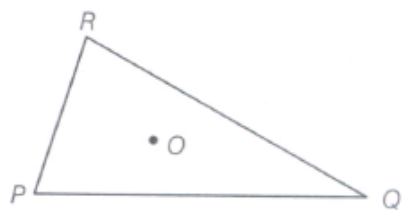414) In the following figure, find the value of ∠1, ∠2 and ∠3.

415) One of the exterior angles of a triangle is 112° and the interior opposite angles are in the ratio 3 : 4. Find the interior opposite angles.

416) The exterior $\angle ACD$ of $\triangle ABC$ 115^0.If $\angle B = 50^0$.then find $\angle A$. $is\angle ACD > \angle A$?

417) If the sum of three exterior angles of a triangle is 360° and the corresponding interior opposite angles are equal to each other. Then, find the value of each of the interior angle of the triangle.

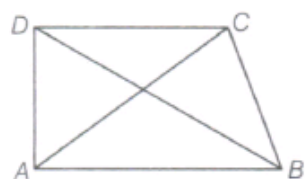418) Take any point O in the interior of a $\triangle PQR$.Is
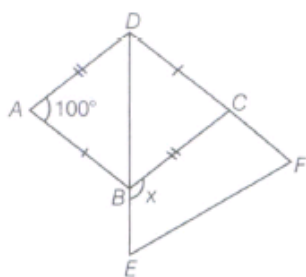

(i) OP+OQ > PQ?
(ii) OQ+OR > QR?
(iii) OR+OP > RP?

419) ABCD is a quadrilateral.Is AB+BC+CD+DA > AC+BD?

420) ABCD is a quadrilateral.Is AB + BC + CD + DA < 2 (AC + BD)?

421) In the following figure, ABII CO. Find the value of $\angle X$

422) If three angles of a triangle are (x + 10)°, 2x and (3x - 40) ^{0}, then find the value of each of the angle.

423) The diagonals of a rhombus measure 16 cm and 30 cm. Then, find its perimeter.

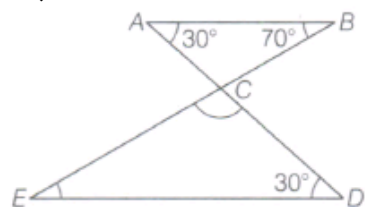424) Draw at $\triangle PQR$ with PR = 4cm, OR = 3cm and $\angle R$ = 105° Measure PQ. Is $((PQ)^2 = (PR)^2 + (QR)^2$?
If not, which one of the following is true?
$(PQ)^2 > (PR)^2 + (QR)^2$ or $(PQ)^2 < (PR)^2 + (QR)^2$
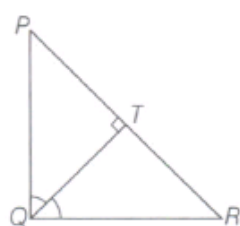
425) In the following figure, if XB II YC and YCIIAD, then find the value of AC.
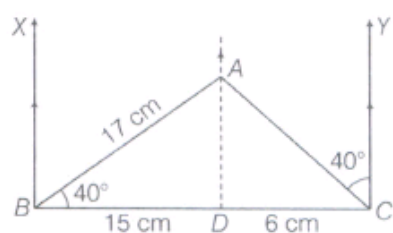
426) In the following figure, find the measures of $\angle DCE$ and $\angle CED$, if ABIIED.

427)

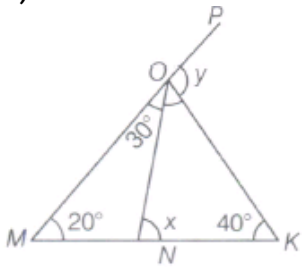

In the above figure, $\angle PQR$ is a right angled at Q, and QT⊥PR. Also $\angle P = 75^0$,then find
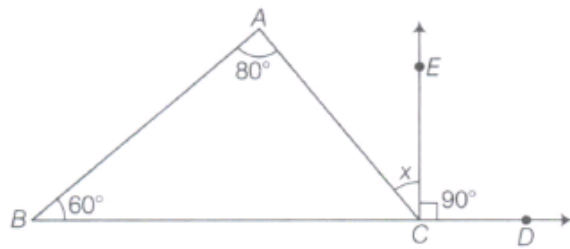(i) $\angle PQT$
(ii) $\angle RQT$
(iii) $\angle QRT$

428) In the following figure, find the values of x and y.

429) Find the value of x in the given figure.

430) If one angle of a triangle is 60° and the other two angles are in the ratio 1: 3. Then, find the angles.

431) The angles of a triangle are arranged in descending order of their magnitude. If the difference between two consecutive angles is 20°. Find the three angles.

432) In a Mathematics class, a teacher made three groups of the children and dictated some triangular properties to each them and asked them to draw the respective triangles.
Group A Draw a triangle having one angle is equal to one-third of a straight angle and the other two equal angles are equal to two-third of a right angle.
Group B Draw a triangle having perimeter equal to 15 cm, two sides are equal to 7cm and 4 cm, respectively.
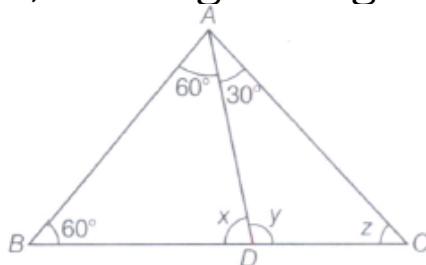**Group C** Draw a triangle having angles in the ratio 2: 3 : 1.
(i) What will be the triangle made by . each group?
(ii) What is the value depicted by each group?

433) Height of a pole is 8 m. Find the length of rope tied with its top from a point on the ground at a distance of 6 m from its bottom.

434) In the given figure, find the values of x, y and z.

435) While discussing the properties of a triangle, teacher asked about the angle of equilateral triangle and gave three options to Ajay.
(a) Each angle in an equilateral triangle is equal to 45°.
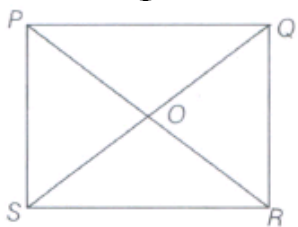(b) Each angle in an equilateral triangle is equal to 90°.
(c) Each angle in an equilateral triangle is equal to 60°.
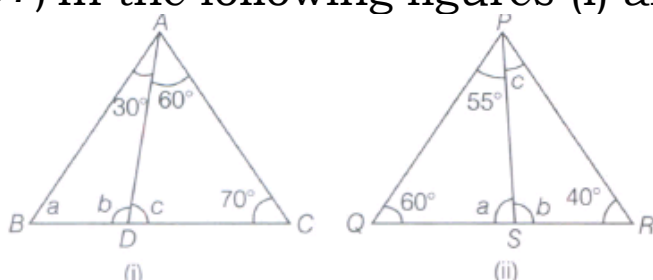Ajay gave the answer as each angle of an equilateral triangle is equal to 45°.
(i) Is this the correct answer?
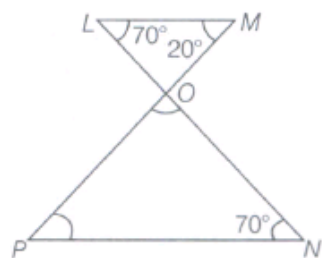(ii) What is the value depicted by Ajay answer.

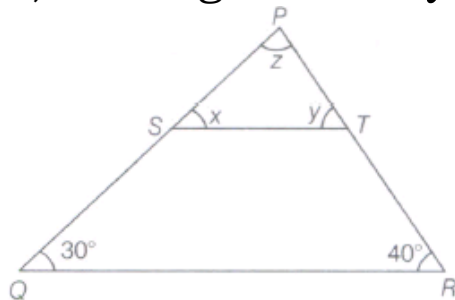**436)** In quadrilateral PORS, show that PQ+ QR + RS + SP< 2(PR + SQ).

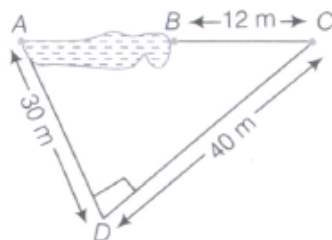**437)** In the following figures (i) and (ii), find the values of a, band c.

438) In the given figure, find the measures of $\angle PON$ and $\angle NPO$.

439) In the given $\triangle PQR$, ST II OR. Find the values of x, y and z.

440) Points A and B are on the opposite edges of a pond as shown in the figure. To find the distance between the two points, the surveyor makes a right angled triangle as shown. Find the distance AB.

441) In the following figure, X and Y are the points on sides PO and PR of $\triangle PQR$.such that XY II OR. If $\angle Q = 40^0$, $\angle P = 30^0$,find the angle (i) $\angle a$ (ii) $\angle b$ (iii) $\angle c$.
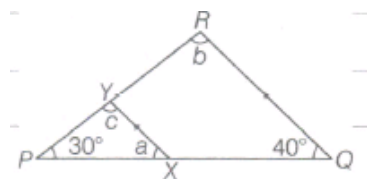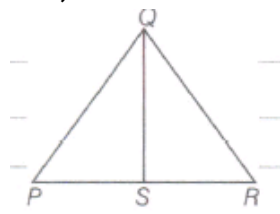

442) The exterior $\angle BCD$ of $\triangle ABC$ is 105°. If $\angle B = 50^0$, then find $\angle A$. Is $\angle BCD > \angle A$?
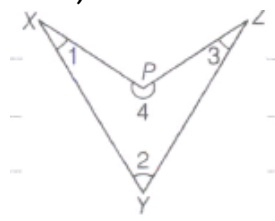
443) Is the sum of three exterior angles of a triangle is 360°? If angles of a triangle are (x - 90)°,(x - 20)° and $\left(\frac{1}{2} \times -10\right)^0$ find the value of x.

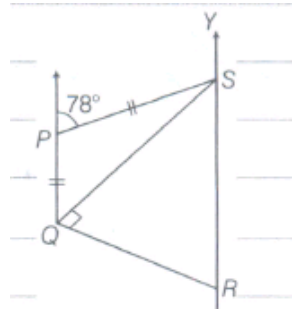444) Michelle drives 10 km South-East, then 8 km West. How far is he from his initial position?

445) In the following figure,$\angle PQS = 3\angle SPQ, \angle QSR = 96^0$. Find the value of $\angle PQS$.
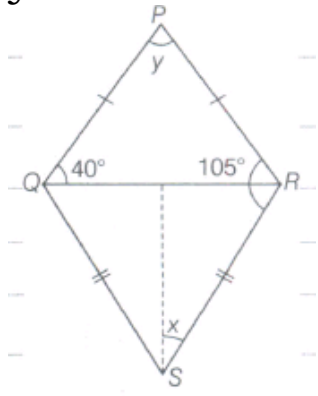

446) In the following figure, find the value of $\angle 1 + \angle 2 + \angle 3 + \angle 4$.

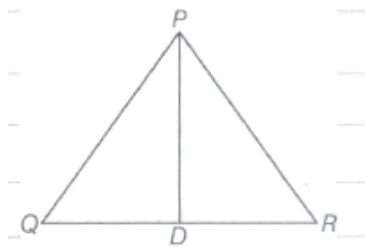447) In the following figure, find the value of $\angle PQR$.

448) In the following figure, $\angle PQR = 40^0$, PQ=PR and QS = RS. Find the values of x and y.

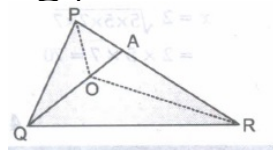449) In the following figure, D is a point on the side QR. Fill in the following blanks using the symbol'=','< ',or' > ' to make it justified.
(i) PD_____PQ+QD
(ii) PD_____PR+RD
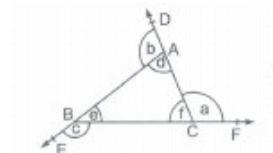(iii) PD_____$\frac{1}{2}(PQ + QR + PR)$

450) Find their altitude and medians. Do you find anything special about them?
SCALENE TRIANGLE

451) O is any point in the interior of a triangle PQR and QO produced meets PR at A (in fig.). Is :

(a) PQ + PA > QA ?
(b) PQ + PA > OQ + OA ?
(c) PQ + PA + AR > OQ + OA +AR ?
(d) PQ + PR > OQ + OR?
(e) PQ + QR + PR > OP + OQ + OR ?

452) Show that the sum of the exterior angles of $\triangle$ABC as shown in the figure is 360°.

453) The sides of a rectangle are 6 cm and 8 cm respectively. Find the length of the diagonal

454) A ladder 10m long was rested along a wall such that its top reaches to a height of 8m from the ground along the wall. How far is the foot of the ladder from the wall?

455) Find the measure of x in each of the following figures.
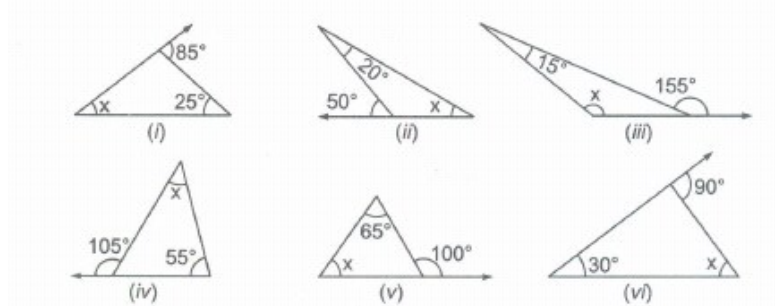
456) ABC is a triangle right angled at A. If AB = 20 cm and AC = 15 cm. Find the length of BC.

457) In a right triangle PQR, right angled at Q. If PQ = 10 cm and QR = 24 cm, then find the length of PR.

458) The sides of a triangle are 21 cm, 29 cm, and 20 cm. Show that it is a right-angled triangle.

459) The foot of a ladder is 8 m away from the wall and its top touches the wall at a height of 6 m. Find the length of the ladder

460) The diagonals of a rhombus measure 8 cm and 6 cm. Find its perimeter.

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460) The diagonals of a rhombus measure 8 cm and 6 cm. Find its perimeter.