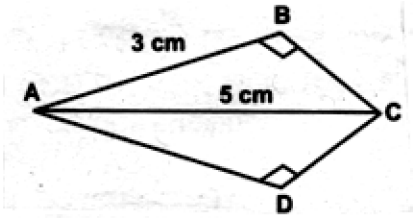
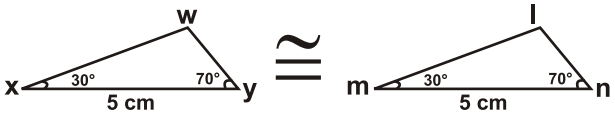
Very-Very Shot Answer questions (1 Marks)

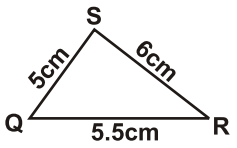
1. In ΔABC, AB=AC and B=40°. Find C.
2. Write correct symbolic form of congruency if AB=QR, BC=PR and CA=PQ.
3. The _____ is the largest side of a right-angled triangle.
4. In the given figure, AC is bisector of BAD, AB=3cm and AC=5cm. Find AD.



5. Two squares are congruent if they have same _____.
6. Find the diameter of circle O_2 if circle $O_2 \cong$ Circle O_1 and radius of circle O_1 is 6 cm.
7. Write the congruence criteria for triangles ΔABC and ΔPQR where AB=QP, B= P and BC=PR.
8. For right angled triangle ΔABC, AB=BC, Find A.
9. EF is the largest side of ΔEFG. Name the greatest angle.
10. In a triangle, sides opposite to equal angles are _____.
11. Write the congruence criteria for the following triangles.

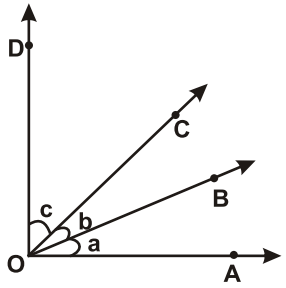


12. If ΔABC is obtuse angled at C then AB _____ BC.
13. Name the side equal to side NL if $\Delta PQR \cong \Delta LMN$.
14. Line segment MN=4 cm and TP=4.2cm. Are they congruent?
15. Which is the largest angel in ΔQRS?



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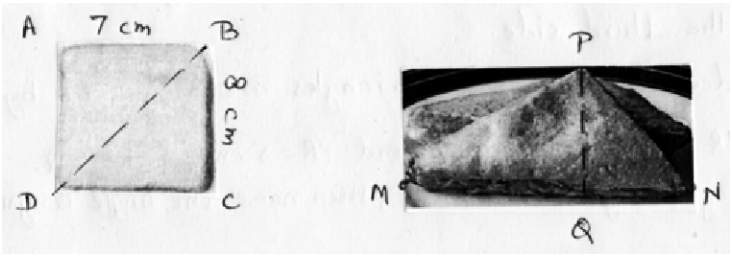
16. The _____ of any two sides of a triangle is always less than the third side.
17. What does it mean if two triangles are congruent by SSS criterion?
18. In ΔPQR, $\angle R = \angle P$, QR=4cm and PR=5cm. Fidn PQ.
19. In the given figure if a=b=c, then name the angle congruent to $\angle AOC$.



20. If two sides of a triangle are 6 cm and 4cm then the length of the third side should be greater than _____cm.
21. What does 'R' stands for in RHS congruence?
22. In ΔBCD and ΔWXY, BD=WX and $\angle B = \angle X$. What should be the third possibility to satisfy ASA congruency criterion?
23. Two triangles may not be _____ if all the three angels of one triangle are equal to the angles of other triangle.

Case-Study Question

24. One sunday morning, Amita decided to have bread-pakodas in breakfast. For preparation, she divided a rectangular bread diagonally into two parts. She served bread-pakodas in a plate of diameter 20cm. On arrival of some guests, she cut the bread-pakoda from the middle as shown in the figure. She served these small bread-pakodas in a plate of radius 8cm. Everybody enjoyed bread-pakodas with tea.



(i) After cutting rectangular bread diagonally, which type of triangular bread is obtained?

(a) Equilateral (b) Scalene

(c) Isosceles (d) Irregular

(ii) The line-segment that divided the bread-pakoda from the middle is called.

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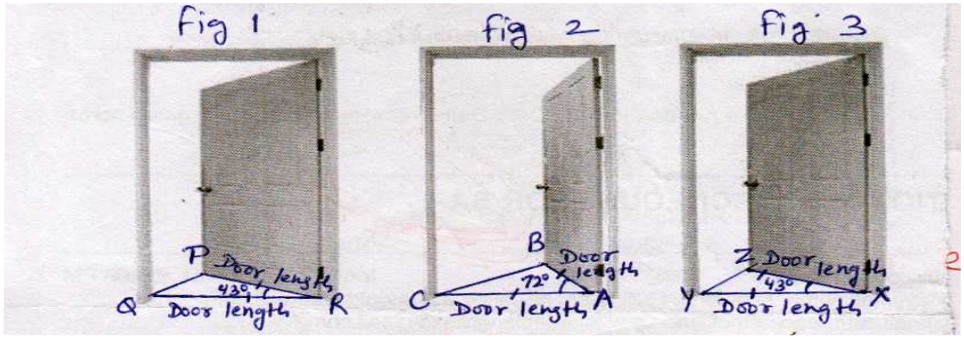
(a) Diagonal (b) Altitude
(c) Base (d) Median

(iii) How much radius of the plate serving small bread-pakoda is to be increased so as to make it congruent to the other plate?
(a) 12cm (b) 4 cm
(c) 2cm (d) 6 cm

(iv) Which of the following is true based on the images?
(a) MQ=QN (b) $\Delta ABD \cong \Delta CDB$
(c) PM+PN=MN (d) $\Delta PQM \cong \Delta PQN$

(v) Name the largest angle in the bread-pakoda.
(a) $\angle P$ (b) $\angle Q$
(c) $\angle M$ (d) $\angle N$

25. Ritesh opened the door at an angle of 43° to enter the class. In the recess, he came out of the class by opening the door at an angle of 72°. After the recess, he again opened the door at 43° and entered the class. The door length is 80cm.



(i) The type of the triangle formed by opening the door is
(a) Equilateral (b) Isosceles
(c) Scalene (d) Irregular

(ii) Which of the following triangles are congruent?
(a) ΔPQR and ΔABC (b) ΔPQR and ΔXYZ
(c) ΔABC and ΔXYZ (d) ΔACB and ΔXYZ

(iii) What is the congruency criteria for these two triangles?
(a) SSS (b) ASA
(c) SAS (d) RHS

(iv) If figure 2, which is the largest side?
(a) BC (b) AB
(c) AC (d) All sides are equal

(v) What is the measure of $\angle P$?
(a) $68\frac{1}{2}°$ (b) $69\frac{1}{2}°$
(c) $21\frac{1}{2}°$ (d) 47°

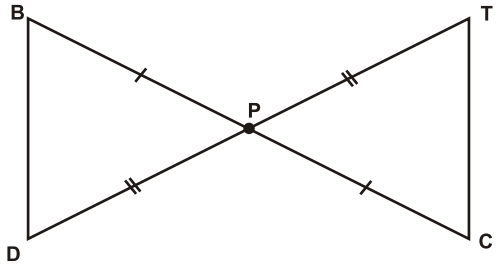
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Very Short Anser Questions (2 Marks)

26. $\Delta ABP \cong \Delta KST$ then

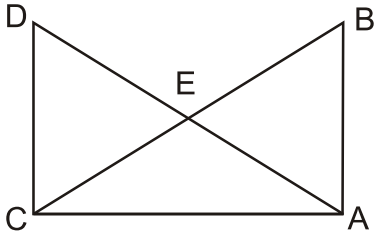
    (a) $\angle P =$ _____ (b) KT = _____

27. In the following figure, which of the two triangles are congruent? Name them in symbolic form.



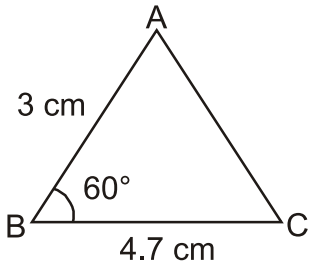
28. Explain why AAA is not a criteria for congruency of two triangles.

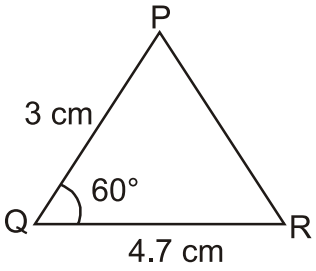
29. In the given figure, If AB = CD, AD = BC then prove that $\Delta ADC \cong \Delta CBA$



30. If ΔABC is an isosceles triangle such that AB = AC, then prove that altitude AD from A on BC bisects it.

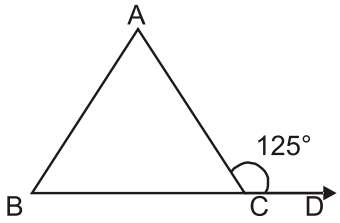
31. Which criteria of congruence of triangles is satisfied in the given figure.





32. In a ΔPQR, $\angle P = 110°$, PQ = PR. Find $\angle Q$ and $\angle R$.

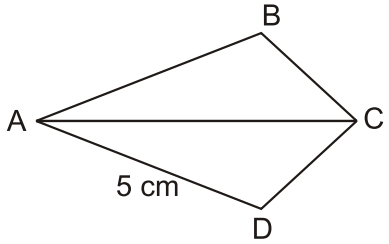
33. In the given figure AB = AC and $\angle ACD = 125°$. Find $\angle A$



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34. In ΔABC, if $\angle A = 55°$, $\angle B = 75°$ then find out the smallest and longest side of the triangle.

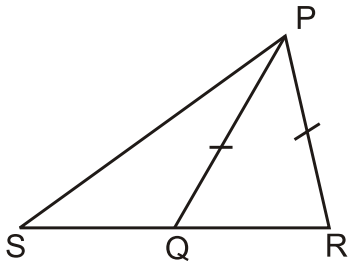
35. In the given figure, AC bisects $\angle A$ and $\angle C$. If AD = 5 cm find AB.



36. The vertex angle of an isosceles triangle is 80°. Find out the meaure of base angles.

Short Anser Questions (3 Marks)

37. In the given figure, Q is a point on the side SR of ΔPSR such that PQ = PR. Prove that PS > PQ.

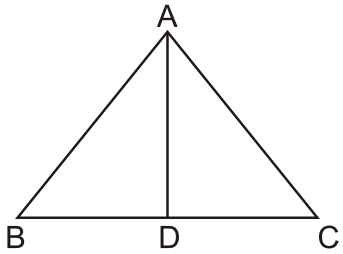


38. ABC is a triangle and D is the mid-point of BC. The perpendicular from D to AB and AC are equal. Prove that triangle is isosceles.

39. Prove that angles opposite to the equal sides of an isosceles triangle are equal.

40. In the given figure, AC > AB and AD bisects $\angle BAC$

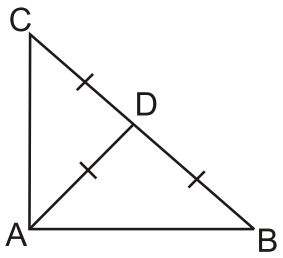
Prove that $\angle ADC > ADB$.



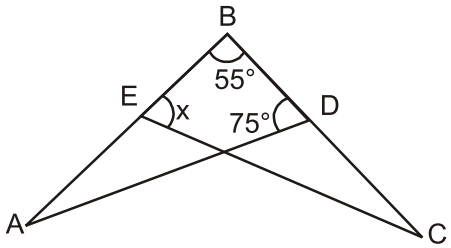
41. S is any point in the interior of a ΔPQR. Prove that SQ + SR < PQ + PR.

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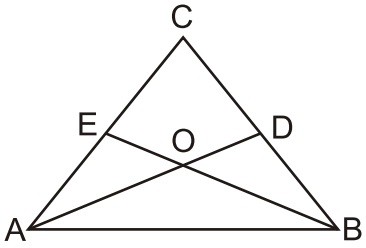
42. In the given figure, if AD = BD = CD, Find $\angle BAC$



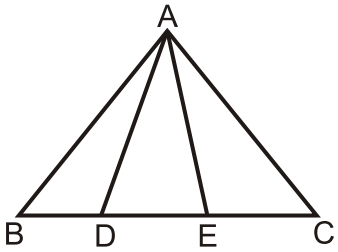
43. In the given figure, if AB = BC and $\angle A = \angle C$ then find the value of x.



44. In the given figure $\angle ABC = \angle BAC$, D and E are points on BC and AC respectively such that DB = AE. If AD and BE intersect at O then prove that OA = OB.



45. In the given figure, if AB = AC, $\angle BAD = \angle CAE$ then prove that ΔADE is an isosceles triangle.

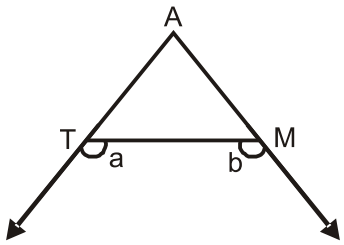


46. In ΔDEF, DM is the angle bisector of $\angle EDF$ that intersects EF at M. If DM = MF, and $\angle E = 2\angle F$ then prove that $\angle EDF = 72°$

47. Prove that the angles of an equilateral triangle are 60° each.

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48. In the given figure, $\angle a > \angle b$, show that $\angle ATM < \angle AMT$.



Long Answer Questions (5 Marks)

49. The altitudes AF, BD and CE of ΔABC are equal. Prove that ABC is an equilateral triangle.

50. O is any point in the interior of a ΔABC. Prove that $(OA+OB+OC) > \frac{1}{2}(AB+BC+CA)$

51. Prove that the perimeter of a triangle is greater than the sum of its three altitudes.

52. Two sides AB, BC and median AM of one ΔABC are respectively equal to sides PQ, QR, and median PN of ΔPQR. Show that.

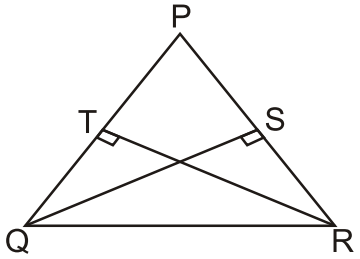
    (i) $\Delta ABM \cong \Delta PQN$

    (ii) $\Delta ABC \cong \Delta PQR$

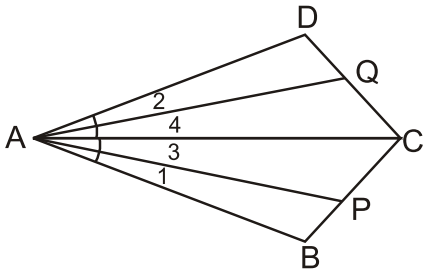
53. In the given figure, PQR is a triangle in which altitudes QS and RT to sides PR and PQ are equal. Show that.

    (i) $\Delta PQS \cong \Delta PRT$

    (ii) PQR is an isosceles triangle

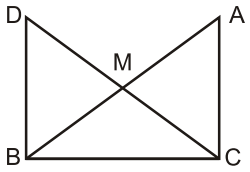


54. In the given figure, AB = AD, $\angle 1 = \angle 2$ and $\angle 3 = \angle 4$. Prove that AP = AQ.



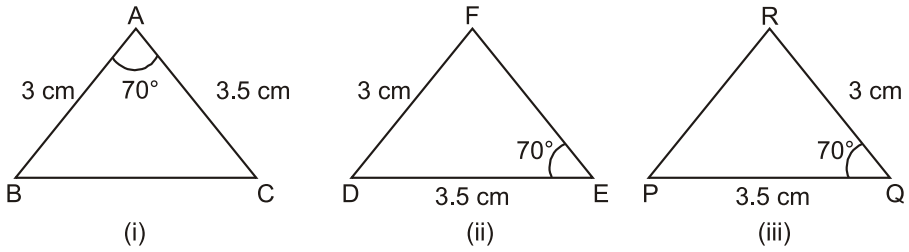
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55. In the given figure, ABC is a right angled triangle, right angled at C and M is the mid-point of hypotenuse AB. C is joined to M and produced to a point D such that DM = CM. D is joined to B. Prove that $CM = \frac{1}{2} AB$



56. Prove that the sum of any two sides of a triangle is greater than its third side.

57. Vandana wishes to literate the poor children of the nearby slum area. She makes flash cards for them as shown in the given figure.



(a) Which two flash cards are congruent?

(b) Which criteria of congruency is satisfied here?

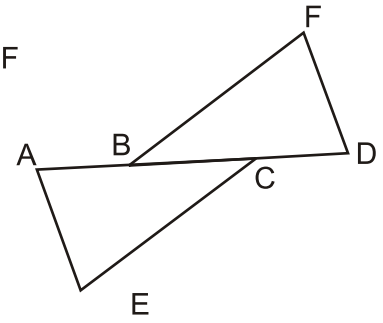
(c) Write the third side of both the triangles which are equal by CPCT.

58. Prove that the sum of any two sides of a triangle is greater than twice the median drawn to the third side.

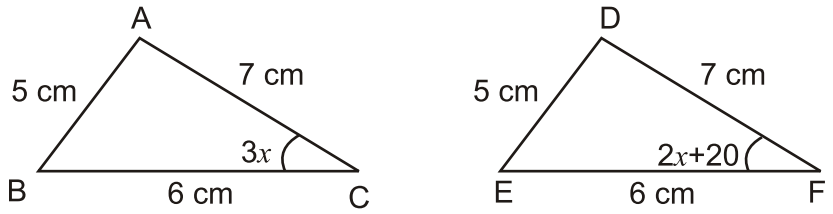
59. In the given figure, AB = CD, CE = BF and $\angle ACE = \angle DBF$. Prove that

(i) $\Delta ACE \cong \Delta DBF$

(ii) AE = DF



60. Show that the triangles ΔABC and ΔDEF in the given figure are congruent. Hence find the value of x.



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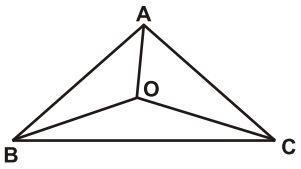
Chapter-7

TRIANGLES

ANSWERS

1. 40°
2. $\Delta ABC \cong \Delta QRP$
3. Hypotenuse
4. AD=3cm
5. Side
6. 12cm
7. $\Delta ABC \cong \Delta QPR$
8. $\angle A = 45°$
9. $\angle G$
10. Equal
11. ASA
12. AB>BC
13. NL=RP
14. NO
15. $\angle Q$
16. Sum
17. It means all the three sides of one triangle are equal to three sides of other triangle.
18. PQ=4cm
19. $\angle BOD$
20. 2cm
21. Right angle
22. $\angle D = \angle W$
23. Congruent
24. (i) b) Scalene
    (ii) b) Altitude
    (iii) c) 2cm
    (iv) b) $\Delta ADB \cong \Delta CDB$
    (v) a) $\angle P$
25. (i) b) Isosceles
    (ii) b) ΔPQR and ΔXYZ
    (iii) c) SAS
    (iv) a) BC
    (v) a) $68\frac{1}{2}°$
26. (a) $\angle T$ (b) AP
27. $\Delta PBD \cong \Delta PCT$
    or any correct form
28. Because many triangles are possible with given three angles.
31. SAS
32. $\angle Q = \angle R = 35°$
33. $\angle A = 70°$
34. Smallest side =AB
    Longest Side = AC
35. AB=5cm
36. 50°, 50°
37. In ΔPQS, $\angle PQR$ is angle
    outside ΔPQS
    So $\angle PSQ + \angle SPQ = \angle PQR$
    $\Rightarrow \angle PSQ + \angle SPQ = \angle PRQ$ (PQ=PR)
    $\Rightarrow \angle PSQ < \angle PRQ$
    $\Rightarrow$ PA> PR
    Since PQ=PR, So PS>PQ
42. $\angle BAC = 90°$
43. 75°
50. For any triangle, the sum of any two sides is always greater than third side. In ΔAOB, ΔAOC and ΔBOC

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OA+OB>AB——(i)

OA+OC>AC——(ii)

OB+OC>BC——(iii)

Adding OA+OB+OC> $\frac{1}{2}$ (AB+BC+AC)

57. (a) $\Delta ABC \cong \Delta QRP$

(b) SAS (c) BC=RP

60. x=20

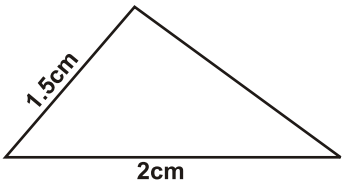
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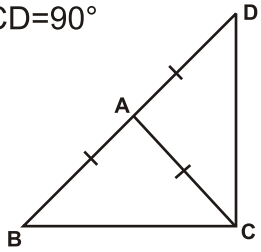
PRACTICE TEST
TRIANGLES

Time : 1 hour M.M. 25

1. Find the measure of each exterior angle of an equilateral triangle. (1)
2. The _____ of an isosceles triangle divides it into two congruent triangles. (1)
3. Which angle is greater in the scalene triangle? (1)
4. The vertical angel of an isosceles triangle is thrice the one of its base angle. Find the base angle. (2)
5. For the given triangle, the third side should be greater than _____ and less than _____. (2)

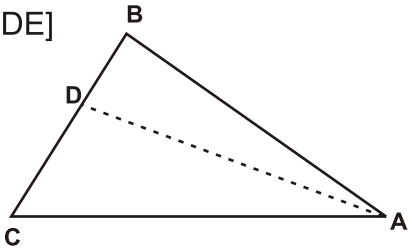


6. Find if ΔABC is possible with AB=4.5cm, BC=5cm and AC=9.5cm. (2)
7. In the given figure, AB=AC and side BA is produced to D such that AB=AD. Prove that $\angle BCD=90°$ (3)

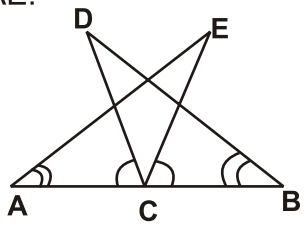


8. AD is a median of ΔABC. Show that AB+AC>2AD. (3)

   [Hint: Produce AD to E such that AD=DE]

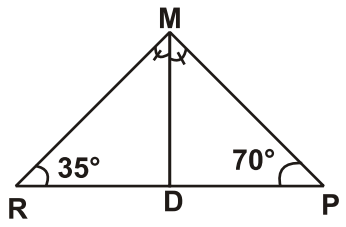


9. In the given figure C is the midpoint of AB, $\angle DCA = \angle ECB$ and $\angle DBC = \angle EAC$. Prove that DC=EC and BD=AE. (5)



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10. In given ΔMRP, $\angle R=35°$, $\angle P=70°$ and bisector of $\angle M$ meets RP at D. Find the longest and shortest side among MD, RD and DP. Also write them in ascending order.



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