DCA CLASSES
CLASS IX – MATHEMATICS – CHAPTER 07
TRIANGLES

Name: Date:

01. In fig, if AD = BC and ∠BAD = ∠ABC, then ∠ACB is equal to

    (a). ∠ABD   (b). ∠BAD   (c). ∠BAC   (d). ∠BDA

02. IN fig, if ABCD is a quadrilateral in which AD = CB, AB = CD, and ∠D = ∠B, then ∠CAB is equal to

    (a). ∠ACD   (b). ∠CAD   (c). ∠ACD   (d). ∠BAD

03. If O is the mid–point of AB and ∠BQO = ∠APO, then ∠OAP is equal to

    (a). ∠QPA   (b). ∠OQB   (c). ∠QBO   (d). ∠BOQ
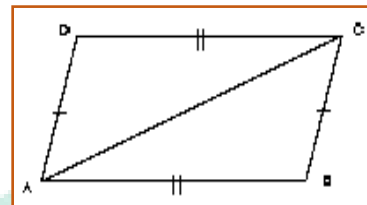
04. IF AB||BC and CB = ∠c, then the true statement is

    (a). AB ≠ AC   (b). AB = BC   (c). AB = AD   (d). AB = AC

05. In △ABC is an isosceles triangle and ∠B = 65º, find x.

    (a). 60º   (b). 70º   (c). 50º   (d). none of these

06. If AB=AC and ∠ACD= 120º, find ∠A

    (a). 50º   (b). 60º   (c). 70º   (d). none of these

07. What is the sum of the quadrilateral:-

    (a). 260º   (b). 360º   (c). 180º   (d). 90º

08. The sum of the triangle will be:-

    (a). 360º   (b). 270º   (c). 180º   (d). 90º

09. An angle is 14º more than its complement. Find its measure.

    (a). 42º   (b). 32º   (c). 52º   (d). 62º

10. An angle is 4 time its complement. Find measure.

    (a). 62º   (b). 72º   (c). 52º   (d). 42º

11. Find the measure of angles which is equal to its supplementary.

    (a). 120º   (b). 60º   (c). 45º   (d). 90º

12. Which of the following pairs of angle are supplementary?

    (a). 30º, 120º   (b). 45º, 135º   (c). 120º, 30º   (d). None of these.

13. Find the measure of each exterior angle of an equilateral triangle.

    (a). 110º   (b). 100º   (c). 120º   (d). 150º

14. In an isosceles △ABC, is AB = AC and ∠A = 90º, Find ∠B.

    (a). 70º   B) 80º   (c). 95º   (d). 60º

15. In a △ABC, is ∠B = ∠C = 45º, Which is the longest side?

    (a). BC   (b). AC   (c). CA   (d). None of these.

16. In a △ABC, is AB = AC and ∠B= 70º, Find ∠A.

    (a). 40º   (b). 50º   (c). 45º   (d). 60º

17. In a △ABC, If ∠A = 45⁰ and ∠B = 70⁰. Determine the shortest sides of the triangles.

    (a). AC   (b). BC   (c). CA   (d). none of these

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18. In a △ABC, if ∠A = 45° and ∠B = 70°, determine the longest sides of the triangle.

(a). AC   (b). CA   (c). BC   (d). none of these

19. The sum of two angles of a triangle is equal to its third angle. Find the third angles.

(a). 90°   (b). 45°   (c). 60°   (d). 70°

20. Two angles of triangles are 65° and 45° respectively. Find third angles.

(a). 90°   (b). 45°   (c). 60°   (d). 70°
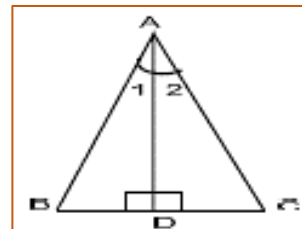
Q01. In a quadrilateral ACBD, AC=AD and bisects ∠A. show △ABC ≅ △ABD?

Q02. If DA and CB are equal perpendiculars to a line segment AB. Show that CD bisects AB.

Q03. L and M, two parallel lines, are intersected by another pair of parallel lines P and C. Show that △ABC ≅ △CDA.

Q04. In fig the bisector AD of △ABC is ⊥ to the opposite side BC at D. show that △ABC is isosceles?

Q05. If △ABC, the bisector of ∠ABC and ∠BCA intersect each other at the point prove that ∠BOC = 90 + ½ ∠A.
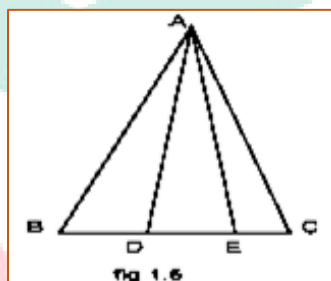
Q06. Prove that is one angle of a triangle is equal to the sum of the other two angles, triangle is right angled:

Q07. IF fig 1.4, if PQ⊥PS, PQ||SR, ∠SQR = 28° and ∠QRT = 65°, then find the values of X and Y.
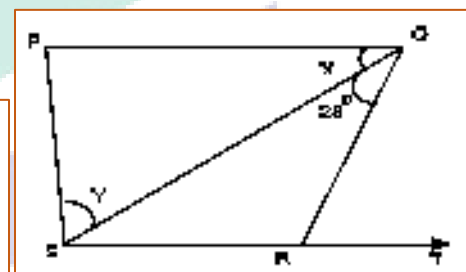
**Q08**. If in fig. AD = AE and D and E are point on BC such that BD = EC. Prove AB=AC.

Q09. If AE = AD and BD = CE. Prove that △AEB ≅ △ADC.

Q10. In quadrilateral ABCD, AC=AD and AB bisects ∠A. show that △ABC ≅ △ABD. What can you say about BC and BD?

Q11. In △ABC, the median AD is ⊥to BC. Prove that △ABC is an isosceles triangle.

Q12. Prove that △ABC is isosceles if altitude AD bisects ∠BAC.

Q13. In the given figure, AC=BC, ∠DCA = ∠ECB and ∠DBC = ∠EAC. Prove that △DBC and △EAC are congruent and hence DC = EC.
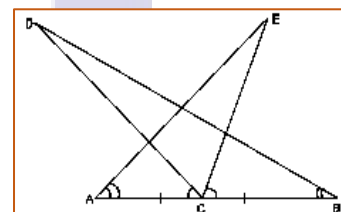
Q14. From the following fig. prove that ∠BAD = 3∠ADB.
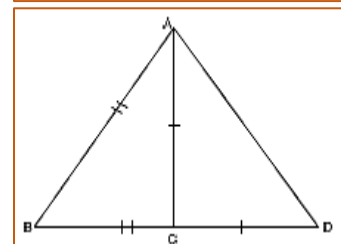
Q15. O is the mid-point of AB and CD. Prove that AC=BD and AC||BD.

Q16. ABCD is a quadrilateral in which AD=BC and ∠DAB = ∠CBA. Prove that.

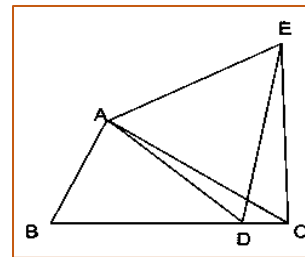(a). △ABD ≅ △BAC   (b). BA=AC   (c). ∠ABD = ∠BAC
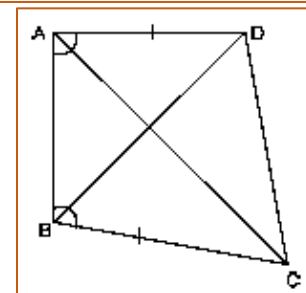
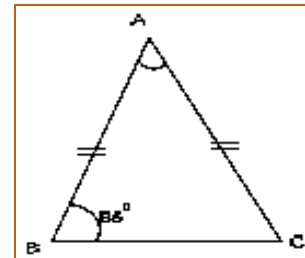**Q17**. ABC is an isosceles triangle in which altitudes BE and CF are drawn to side AC and AB respectively. Show that these altitudes are equals.

Q18. If AC = AE, AB = AD and ∠BAD = ∠EAC. Show that BC =DE.

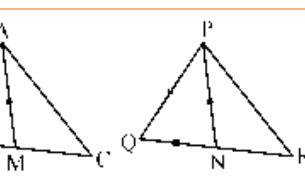**Q19**. Line *l* is the bisector of an angle ∠A and B is any point on *l*. BP and BQ are ⊥ from B to the arms of ∠A show that:
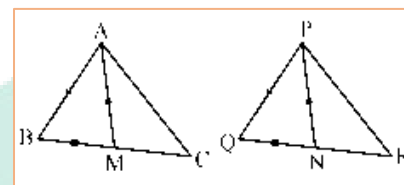(a). △APB ≅ △AQB   (b). BP = BQ or B is A equidistant from the arms of ∠A

Q20. In the given figure, △ABC is an isosceles triangle and ∠B = 65, find x.

Q21. AB is a line-segment. AX and BY are equal two equal line-segments drawn on opposite side of line AB such that AX||BY. If AB and XY intersect each other at P. Prove that
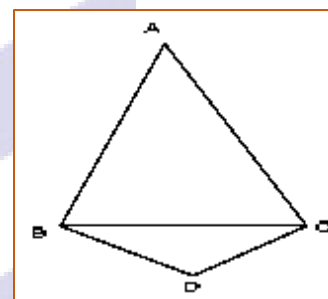(a). △APX ≅ △BPY,   (b). AB and XY bisect each other at P.

Q22. In an isosceles △ABC, with AB =AC, the bisector of ∠B and ∠C intersect each other at O. Join A to O. show that:
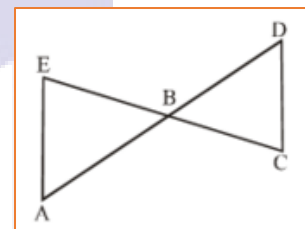(a). OB = OC   (b). AO bisects ∠A.

Q23. Two side AB and BC and median AM of one triangle ABC are respectively equal to side PQ and QR and median PN of △PQR, show-
(a). △ABM ≅ △PQN   (b). △ABC ≅ △PQR

Q24. In the given figure, ABC and DBC are two triangle on the same base BC such that AB = AC and DB = DC. Prove that ∠ABD = ∠ACD,

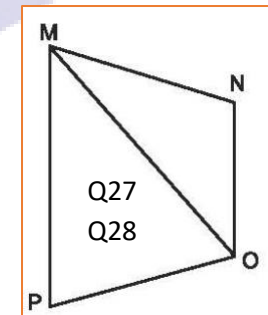**Q25**. If ∠E > ∠A and ∠C > ∠D. prove that AD > EC.

Q26. In triangle PQR, if PQ = PR and S is any point on side PR. Prove that RS < QS.

Q27. In fig. prove that MN + NO + OP + > 2MO.

Q28. In fig. prove that MN + NO + OP > PM.

Q27
Q28

Q29. Prove that the angle opposite of the greatest side of a △ is greater than two-third of a right angle.

Q30. AD is the bisector of ∠A of △ABC, where D lies on BC. Prove that $\frac{AB}{BD} = \frac{AC}{CD}$.

Q31. AB and CD are respectively the smallest and the largest side of a quadrilateral ABCD. Prove that ∠A > ∠C and ∠B > ∠D.

Q32. It the bisector of a vertical angle of a triangle also bisects the opposite side; Prove that the triangle is an isosceles triangle.
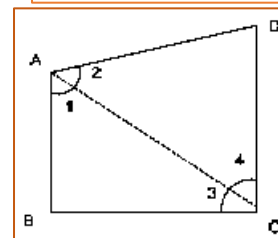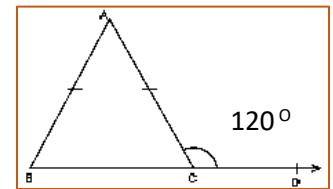
Q33. △ABC is an isosceles triangle and ∠B = 45°, find ∠A°.

Q34. △ABC is an equilateral triangle and ∠B = 60°, find ∠C°.

Q35. In the given fig., AB = AC and ∠ACD = 120°, find ∠B, ∠A.

Q36. Prove that in a right triangle, hypotenuse is the longest (or largest) side.

Q37. △ABC is an isosceles triangle with AB = AC. Draw AP⊥BC to show that ∠B = ∠C.
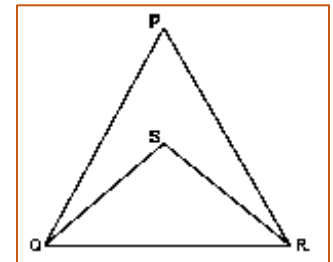
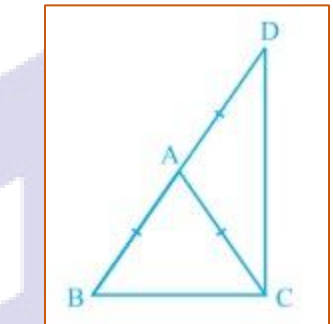**Q38**. AD is an altitude of an isosceles triangle ABC in which AB = AC that:

   (a). AD bisects BC   (b). AD bisects ∠A

Q39. In the given figure, PQ > PR, QS and RS are the bisectors of the ∠Q, ∠R
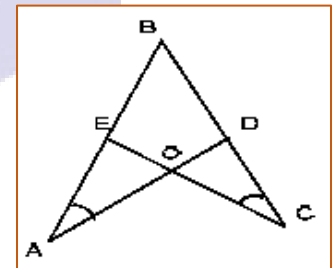   respectively. Prove that SQ > SR.
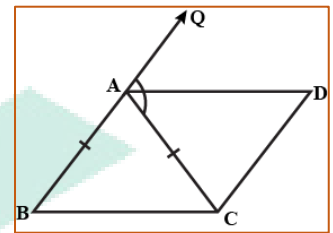
Q40. Prove that sum of the quadrilateral is 360°?

Q41. △ABC is an isosceles triangle with AB = AC. AD bisects the exterior ∠QAC.
   Prove that AD**||**BC.

Q43. △ABC is an isosceles triangle in which AB = AC side BA is produced to D such
   that AD = AB. Show that △BCD is a right angle.

Q44. In the given figure, ∠A = ∠C and AB = BC. Prove that △ABD ≅ △CBE.

Q45. In the given figure, PR > PQ and PS is the bisector of △QPR.
   Prove that △PSR ≅ △PSQ.