MATHS

BOOKS - NCERT MATHS (HINGLISH)

TRIANGLES

Triangles

1. Which of the following is not a criterion for congruence of triangle ?

A. SAS

B. ASA

C. SSA

D. SSS

Answer: C

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2. If $AB = QR, BC = PR$ and $CA = PQ$ then

A. $\Delta ABC \cong \Delta PQR$

B. $\Delta CBA \cong \Delta PRQ$

C. $\Delta BAC \cong \Delta RPQ$

D. $\Delta PQR \cong \Delta BCA$

Answer: B

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3. In ΔABC, if AB=AC and $\angle B = 50^\circ$, then $\angle C$ is equal to

A. 40°

B. 50°

C. 80°

D. 130°

Answer: B

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4. In ΔABC, if BC=AB and $\angle B = 80^\circ$,then $\angle A$ is equal to

A. 80°

B. 40°

C. 50°

D. 100°

Answer: C

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5. In ΔPQR, If $\angle R = \angle P$, QR=4 cm and PR = 5 cm. Then, the length of PQ is

A. 4 cm

B. 5 cm

C. 2 cm

D. 2.5 cm

Answer: A

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6. If D is a Point on the side BC of a ΔABC such that AD bisects $\angle BAC$. Then

A. BD=CD

B. $BA > BD$

C. $BD > BA$

D. $CD < CA$

Answer: B

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7. It is given that $\Delta ABC \cong \Delta FDE$ and AB= 5 cm , $\angle B = 40^\circ$ and $\angle A = 80^\circ$ then which of the following is true ?

A. $DF = 5cm, \angle F = 60^\circ$

B. $DF = 5cm, \angle E = 60^\circ$

C. $DE = 5cm, \angle E = 60^\circ$

D. $DE = 5cm, \angle D = 60^\circ$

Answer: B

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8. If two sides of a tringle are of length 5 cm and 1.5 cm, then the length of third side of the triangle cannot be

A. 3.6 cm

B. 4.1 cm

C. 3.8 cm

D. 3.4 cm

Answer: D

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9. In ΔPQR, If $\angle R > \angle Q$, then

A. $QR > PR$

B. $PQ > PR$

C. $PQ < PR$

D. $QR > PR$

Answer: B

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10. In ΔABC and ΔPQR, If AB=AC, $\angle C = \angle P$ and $\angle B = \angle Q$, then the two triangles are

A. isosceles but not congruent

B. isosceles and congruent

C. congruent but not isosceles

D. Neither congruent nor isosceles

Answer: A

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11. In ΔABC and ΔDEF , AB=FD and $\angle A = \angle D$. The two triangle will be congruent by SAS axiom, if

A. BC=EF

B. AC=DE

C. AC=EF

D. BC=DE

Answer: B

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12. In ΔABC and $\Delta PQR, \angle A = \angle Q$ and $\angle B = \angle R$.

Which side of ΔPQR should be equal to side AB of ΔABC, so that the two triangle are congruent ? Give reason for your answer.

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13. In ΔABC and $\Delta PQR, \angle A = \angle Q$ and $\angle B = \angle R.$ Which side of ΔPQRshould be equal to side BC of ΔABC ,so that the two triangle are congruent ? Give reason for your answere.

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14. If two sides and an angle of one triangle are equal to two sides and an angle of another triangle , then the two triangles must be congruent'. Is the statement true? Why?

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15. If two sides and an angle of one triangle are equal to two sides and an angle of another triangle , then the two triangles must be congruent'. Is the statement true? Why?

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16. Is it possible to construct a triangle with lengths of its sides as 4 cm, 3 cm and 7 cm? Give reason for your answer.

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17. It is given that $\Delta ABC \cong \Delta RPQ$ .Is it true to say that BC =QR ? Why ?

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18. It $\Delta PQR \cong \Delta ED$,then is it true to say the PR = EF ? Given reason for your answer.

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19. In $\Delta PQR, \angle P = 70^\circ$ and $\angle R = 30^\circ$ .Which side of this triangle is the longest ? Give reason for your answer

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20. AD is a median of the ΔABC.Is it trure $AB + BC + CA > 2AD$? Give reason for your answer

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21. M is point on side BC of a triagle ABC such that AM is the bisector of $\angle BAC$.Is it ture to say that perimeter of the triangle is greater than 2 AM ? Give reason for your ancwer ?

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22. Is it possible to construct a triangle with lengths of its sides as 9 cm, 7 cm and 17 cm? Give reason for your answer.

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23. Is it possible to construct a triangle with length of its sides as 8 cm ,7 cm and 4 cm ? Give reason for your answer

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24. ABC is an isosceles triangle with AB =AC and BD,CE are its two medians. Show that BD=CE .

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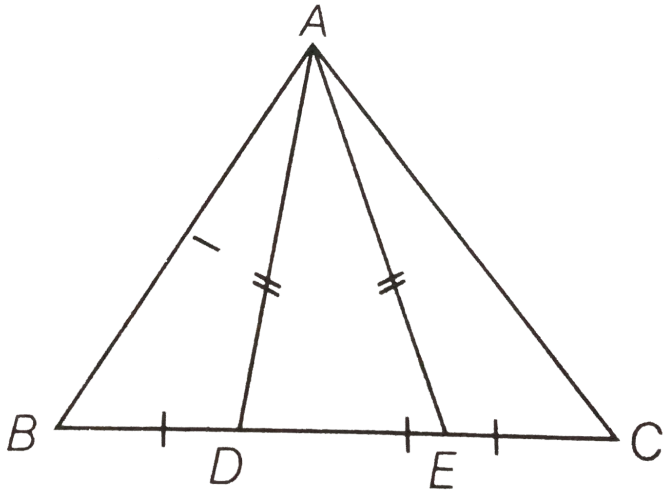
25. In figure ,D and E are Points on side BC of a ΔABC such that BD=CE and AD=AE.Show that

$\Delta ABD \cong \Delta ACE.$



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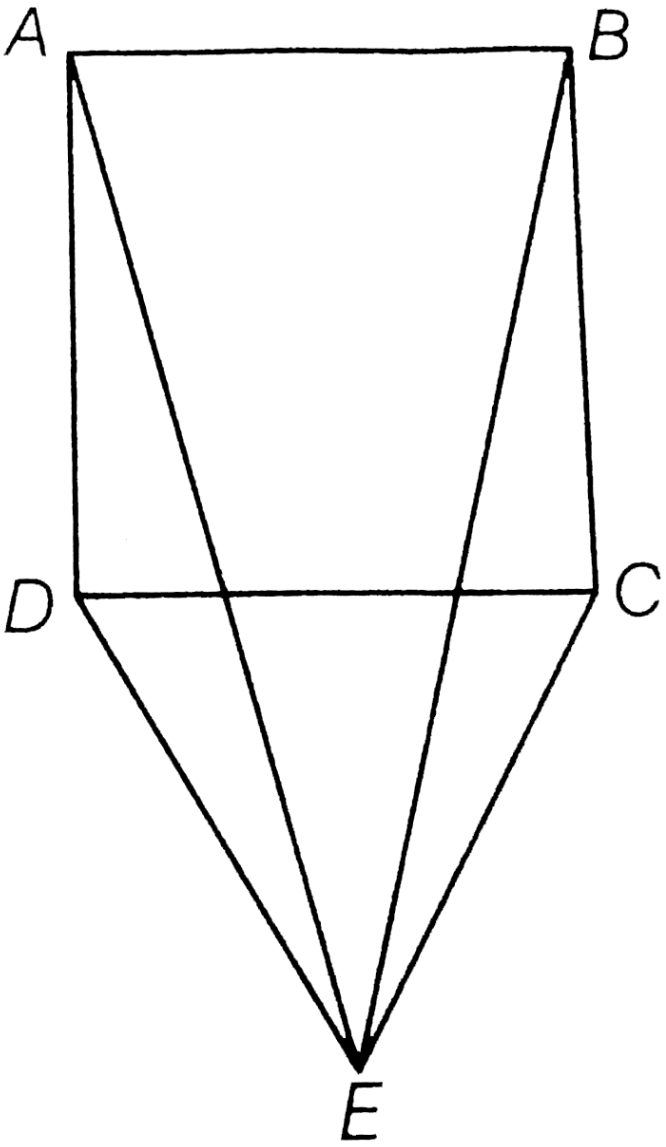
26. In the given figure,ΔCDE is an equlatel triangle triangle formed on a side CD of a square ABCD.Show

that $\Delta ADE \cong \Delta BCE$.



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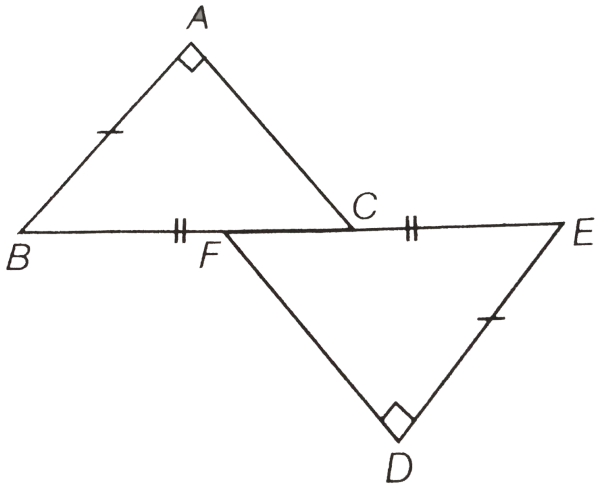
27. In figure ,$BA \perp AC, DE \perp DF$such that BA =DE and BF=EC.then



A. $AB = EF$

B. $\angle A = \angle E$

C. $\Delta ABC \cong \Delta DEF$

D. None

Answer:

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28. If Q is a point on the side SR of a triangle PSR such that PQ=PR then prove that $PS > PQ$

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29. S in any point on side QR of a ΔPQR. $Showt\hat{}$PQ + QR+RP gt 2PS.`

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30. D is any point on side AC of a ΔABC with $AB = AC$ then

A. $CD < BD$

B. $CD = BD$

C. $CD > BD$

D. $NONE$

Answer: A

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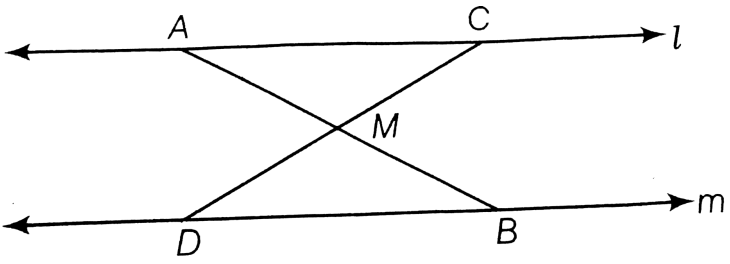
31. In give figur $l||m$ and M is the mid-point of a line segment AB .Show that M is also the mid- point of any

line segment CD,having its end points on l and m,respectively.



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32. The bisectors of $\angle B$ and $\angle C$ of an isosceles triangle with $AB = AC$ intersect each other at a point O. BO is produced to meet AC at a point M. Prove that $\angle MOC = \angle ABC$.

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33. Bisectors of the angles B and C of an isosceles ΔABC with AB=AC intersect each other at 0.Show that external angle adejcent to $\angle ABC$is equato$\angle BOC$.

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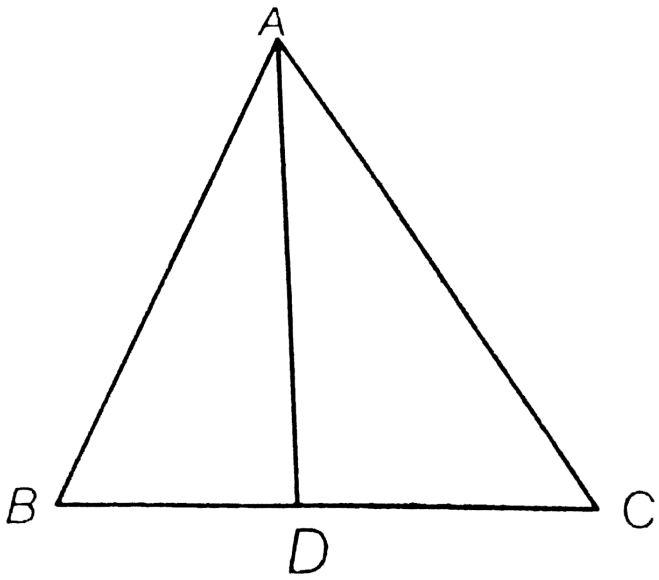
34. In following figure if AD if the bisector of $\angle ABC$, then prove that $AB > BD$



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35. Find all the anlges of an equilateral triangle.

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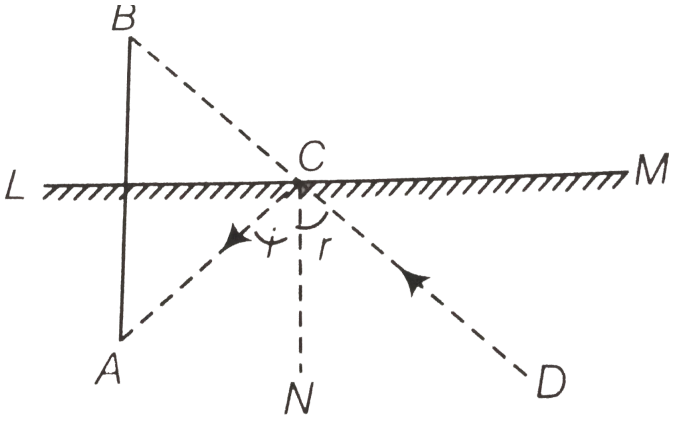
36. The image of the an object placed at a point A before a plane mirror LM is seen at the point B by an observer at D as shown in figure.prove that the image is as far behind the mirror as the object is in front of the mirror.



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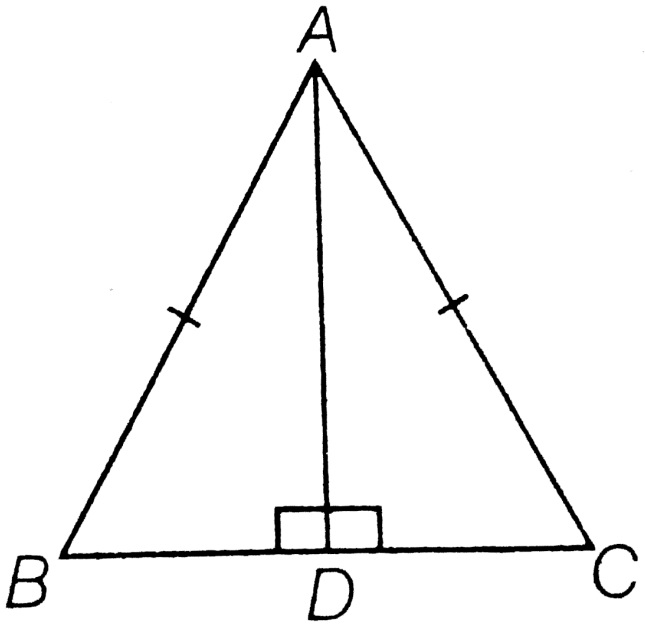
37. ABC is an isosceles triangle with AB=AC and D is a point on ABC BC such that $AD \perp BC$ (see figure). To prove that $\angle BAD = \angle CAD$ a student proceeded as follows



$In \Delta ABD$ and ΔACD,we have

$AB = AC$ [Given]

$\angle B = \angle C$ [$\because$ AB=AC]

and $\angle ADB = \angle ADC$

Therefore

$$\Delta ABD \cong \Delta ACD \qquad [\text{by AAS congruence rule}]$$

So , $\angle BAD = \angle CAD \qquad [byCPCT]$

What is the defect in the above argument ?

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38. P is a point on the bisector of $\angle ABC$ .If the line through P,parallel to BA meet at Q ,prove that BPO is an isosceles triangle.

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39. ABCD is a quadrilateral in which AB=BC and AD =CD ,Show that BD bisects boht the angle ABC and ADC

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40. ABC is a right triangle with AB = AC.If bisector of $\angle A$ meet BC at D then prove that BC =2 AD .

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41. O is a point in the interior of a square ABCD such that ΔOAB is an equilateral triangle . Show that ΔOCD is an isoceles triangle .

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42. ABC and DBC are two triangle on the same base BC such that A and D lie on the opposite sides of BC,AB=AC and DB =DC ,Show that AD is the perpedicular bisector of BC.

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43. In Figure, $aAD\ and\ BE$ are respectively altitudes of an isosceles triangle ABC with $AC = BC$. Prove that $AE = BD$

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44. Prove that sum of any two sides of a triagle is greater than twice the median with respect to the third side.

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45. Show that in a quadrilateral ABCD , $AB + BC + CD + DA < 2(BD + AC)$

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46. Show that in a quadrilateral ABCD $AB + BC + CD + DA > AC + BD$

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47. In a ΔABC, D is the mid point of side AC such that BD $= \frac{1}{2}$ AC .$\angle ABC$ is ?.

A. 45°

B. 30°

C. 90°

D. None of these

Answer: C

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48. In a right triangle,Prove that the line-segment joining the mid-point of the hypotenuse to the opposite vertex is half the hypotenuse

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49. Two lines l and m interset at the O and P is Point on a line n Passing through the point O such that P is equidistant from l and m. Prove that n is the bisectof the angle formed by l and m

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50. The line segments joining the midpoints M and N of parallel sides AB and DC respectively of a trapezium ABCD is perpendicular to both the sides AB and DC. Prove that AD=BC

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51. In Figure, diagonal AC of a quadrilateral $ABCD$ bisects the angles A and C . Prove that $AB = AD$ and $CB = c$..

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52. ΔABC is a right triangle right angled at A such that $AB = AC$ and bisector of $\angle C$ intersects the side AB at D. Prove that $AC + AD = BC$.

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53. In Figure, $AB \; and \; CD$ are respectively the smallest and longest sides of a quadrilateral $ABCD$. Show that $\angle A > \angle C \; and \; \angle B > \angle D$

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54. Prove that in a triangle, other then an an eguilateral triangle, angle opposite the longest side is greater than $\frac{2}{3}$ of a right angle

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55. If ABCD is a quadilateral such that AB= AD and CB = CD ,then prove that AC is the perpendicular bisector of BD

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