# INDIAN SCHOOL MUSCAT
SENIOR SECTION
DEPARTMENT OF MATHEMATICS
CLASS IX
WORKSHEET NO. 5
TRIANGLES

## SECTION A: (1 MARK)

1. In ∆PQR if $\angle QPR = 80°$ and PQ = PR, find ∠R and ∠Q   (CCE 2010)   50°, 50°

2. In ∆ABC, $\angle A = 100°$, ∠B= 30° and ∠C=50°. Write the inequality relation between sides AB and AC. Justify it.

3. In the given fig 1, Mention the congruency rule used in proving ∆ACB $\cong$ ∆ACD   SAS $\cong$ RULE

4. In the given figures, BD and YE are the medians. Find the value of YZ.(State the reasons)   5cm

Fig1
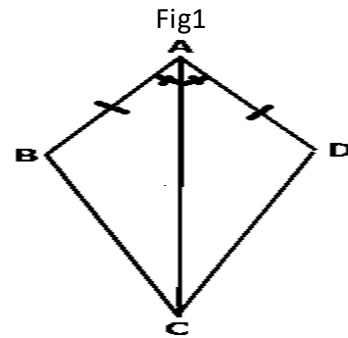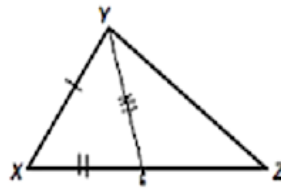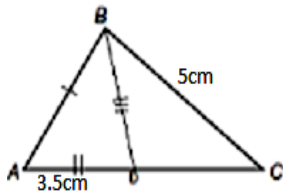
SECTION B: (2 MARKS)

5. Line segments AB and CD intersect at M. If AC ‖ DB and M is midpoint of AB. Prove that M is midpoint of CD.   (CCE 2010)

6. In the given figure, RV = VT, QV = VU, VR $\perp$ SQ and VT⊥SU. Prove that SQ =SU.
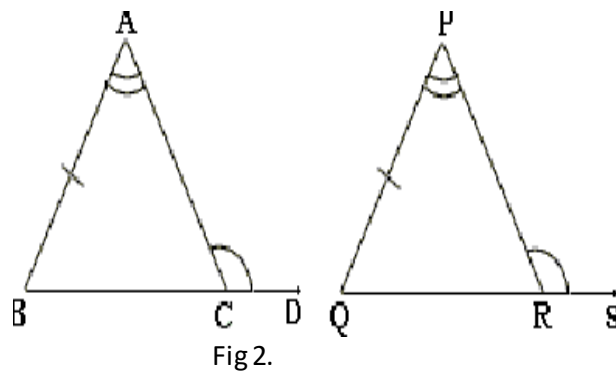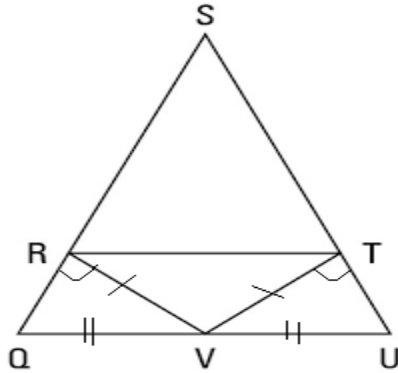
Fig 2.

7. In ∆PSR, Q is a point on SR such that PQ = PR, show that PS > PQ.

8. In fig2, AB =PQ, $\angle A = \angle P$ and ∠ACD = ∠PRS. Prove that ∆ABC $\cong$ ∆PQR.

9. In ∆ABC, AD is the bisector of $\angle BAC$. Prove that AB > BD.

SECTION C: (3 MARKS)

10. ABCD is a square. X and Y are points on the sides AD and BC such that AY = BX. Prove that $\angle XAY = \angle YBX$. (CCE 2013)

11. In fig 3., AD = BC and BD = AC , prove that $\angle DAB = \angle CBA$ (CCE 2014)

12. In fig4., l ∥ m and p ∥ q . Show that $\Delta ABC \cong \Delta CDA$.

13. In fig.5, $\angle 1 = \angle 2, \angle 3 = \angle 4$. Prove that $BC = CD$.

Fig.3   Fig. 4   Fig 5.
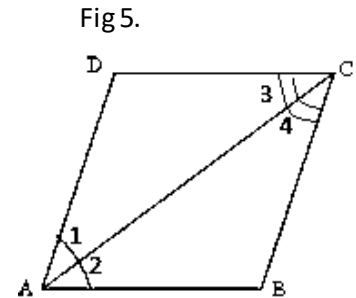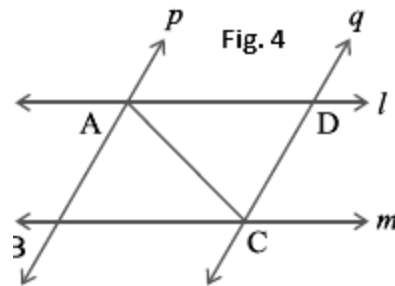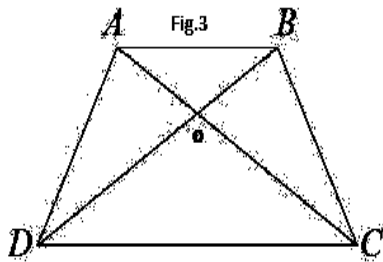
14. In the given fig, ΔABC and ΔDBC are two isosceles triangle on the same base BC . If $\angle BDC = 120°$ and $\angle ABD = 40°$, then find $\angle BAC$ and $\angle ADC$. (CCE 2010)
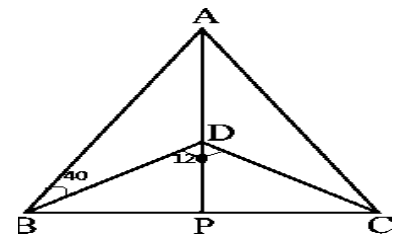
Ans: 40°, 120°

SECTION D: (4 MARKS)

15. ABC is a triangle and D is the midpoint of BC. The perpendiculars from D to AB and AC are equal. Prove that triangle is isosceles. (CCE 2013)

16. Two sides AB and BC and median AM of ΔABC are respectively equal to sides PQ, QR and median PN of ΔPQR then prove that ΔABC ≅ ΔPQR.

17. In the given figure, AD and CE are the bisectors of $\angle A$ and $\angle C$ respectively. If $\angle ABC = 90°$, find $\angle ADC + \angle AEC$. (CCE 2015)
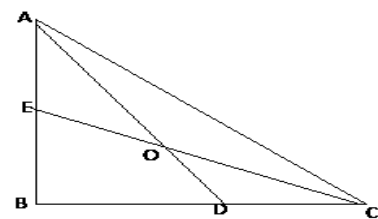
225°

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

19. ABC is a triangle in which AB = AC. X and Y are points on AB and AC such that AX = AY. Prove that ΔABY ≅ Δ ACX (CBSE 2011)

20. ABC is a triangle in which D is point on AC and E on AB such that AD = EC= ED = BC. Prove that $\angle A : \angle B = 1:3$ (CBSE 2015)