

Octahedral classes, kharadi
2nd floor, yashwant plaza, near bank of India,

Class 09 - Mathematics

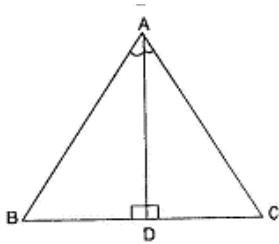
Triangles

Maximum Marks: 30

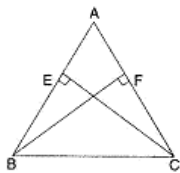
Time Allowed: 1 hour and 30 minutes

Section A

1. Prove that $\triangle ABC$ is an isosceles, if bisector of $\angle BAC$ is perpendicular to BC . 2

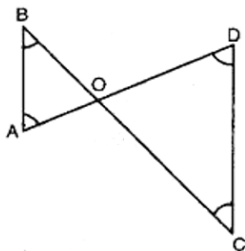


2. ABC is an isosceles triangle in which altitudes BF and CE are drawn to sides AC and AB respectively. Show that these altitudes are equal. 2

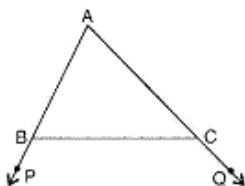


3. Is it possible to construct a triangle with lengths of its sides as 4 cm, 3 cm and 7 cm? Give reason for your answer. 2

4. In figure, $\angle B < \angle A$ and $\angle C < \angle D$. Show that $AD < BC$. 2



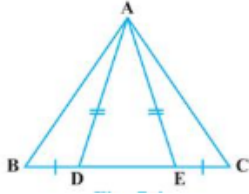
5. In figure, sides AB and AC of $\triangle ABC$ are extended to points P and Q respectively. Also $\angle PBC < \angle QCB$. Show that $AC > AB$. 2



6. $\triangle ABC$ is an isosceles triangle in which $AB = AC$. Side BA is produced to D such that $AD = AB$. Show that $\angle BCD$ is a right angle. 3

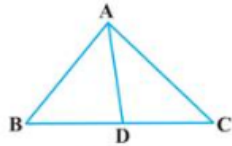
7. In the given figure, D and E are points on side BC of a $\triangle ABC$ such that $BD =$ 3

CE and AD = AE. Show that $\triangle ABD \cong \triangle ACE$.

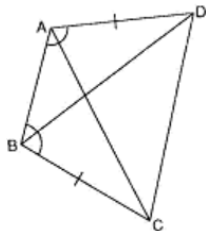


8. Prove that the sum of any two sides of a triangle is greater than twice the median with respect to the third side. 3

9. In the given figure, AD is the bisector of $\angle BAC$. Prove that $AB > BD$. 3



10. ABCD is a quadrilateral in which $AD = BC$ and $\angle DAB = \angle CBA$. 4



Prove that:

i. $\triangle DAB \cong \triangle BAC$

ii. $BD = AC$

iii. $\angle ABD = \angle BAC$

11. AB is a line segment and P is its mid-point. D and E are points on the same side of AB such that $\angle BAD = \angle ABE$ and $\angle EPA = \angle DPB$. 4

Show that:

i. $\triangle DAP \cong \triangle EBP$

ii. $AD = BE$

