

# IX JSUNIL TUTORIAL MATH AND SCIENCE – TRIANGLE TEST PAPER-3

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1. In  $\triangle ABC$ ,  $AB = 4\text{cm}$  and  $BC = 5\text{cm}$ . Find the greatest angle.
2. In  $\triangle ABC$ , if  $AD$  is the bisector of  $\angle A$ , show that  $AB > BD$ .
3.  $O$  is a point in the interior of  $\triangle ABC$ , prove  $AB + AC > OB + OC$
4.  $AD$  is a median to side  $BC$  of  $\triangle ABC$ . Prove that  $AB + AC > 2AD$ .

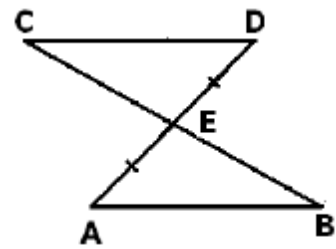
5. Show that the difference between any two sides of a triangle is less than the third side.

6. In  $\triangle ABC$   $AP \perp QR$  show  $AR > AQ$

7. Line-segment  $AB$  is parallel to another line-segment  $CD$ .  $E$  is the mid-point of  $AD$ . Show that

(i)  $\triangle AEB \cong \triangle DEC$

(ii)  $E$  is also the mid-point of  $BC$ . (See fig)



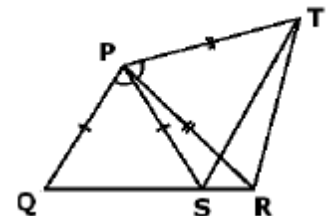
8. Angles opposite to equal sides of an isosceles triangle are equal. Prove.

9. In Fig.  $PQ = PS$ ,  $PR = PT$  and  $\angle QPS = \angle RPT$ . Show that  $QR = ST$ .

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

11. Two triangles are congruent if two angles and the included side of one triangle are equal to two angles and the included side of other triangle.

12. In right triangle  $ABC$ , right angled at  $C$ ,  $E$  is the mid-point of hypotenuse  $AB$ .  $C$  is joined to  $E$  and produced to a point  $D$  such that  $DE = CE$ . Point  $D$  is joined to point  $B$  (see fig).



Show that: (i)  $\triangle AEC \cong \triangle BED$

(ii)  $\angle DBC$  is a right angle. (iii)  $\triangle DBC \cong \triangle ACB$  (iv)  $CE = \frac{1}{2} AB$

(v)  $E$  is equidistant from  $A$ ,  $B$  and  $C$

