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CLASS – 9

MATHEMATICS

Chapter – 7

Triangles

Part –6

Theorem

Vikas Saini

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OVERVIEW

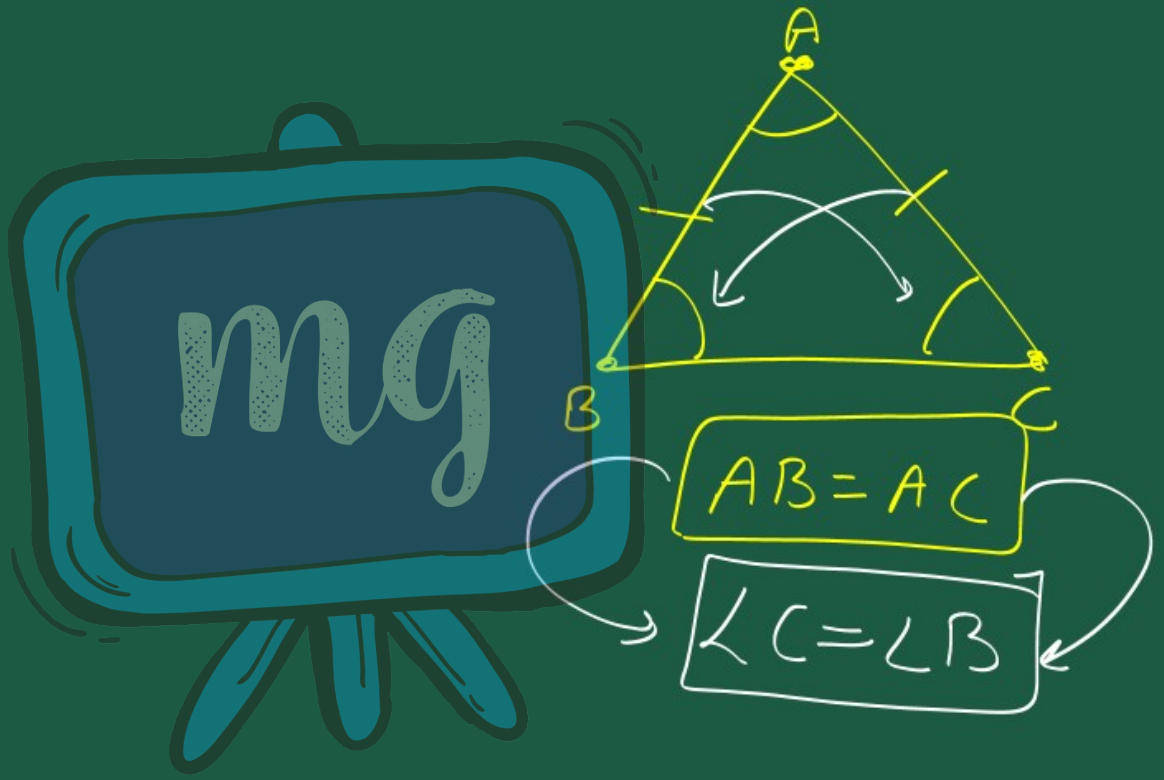
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1. All-equality of triangles
2. Criteria for congruence of triangles
3. Some properties of a triangle
4. Some more criteria for congruence of triangles

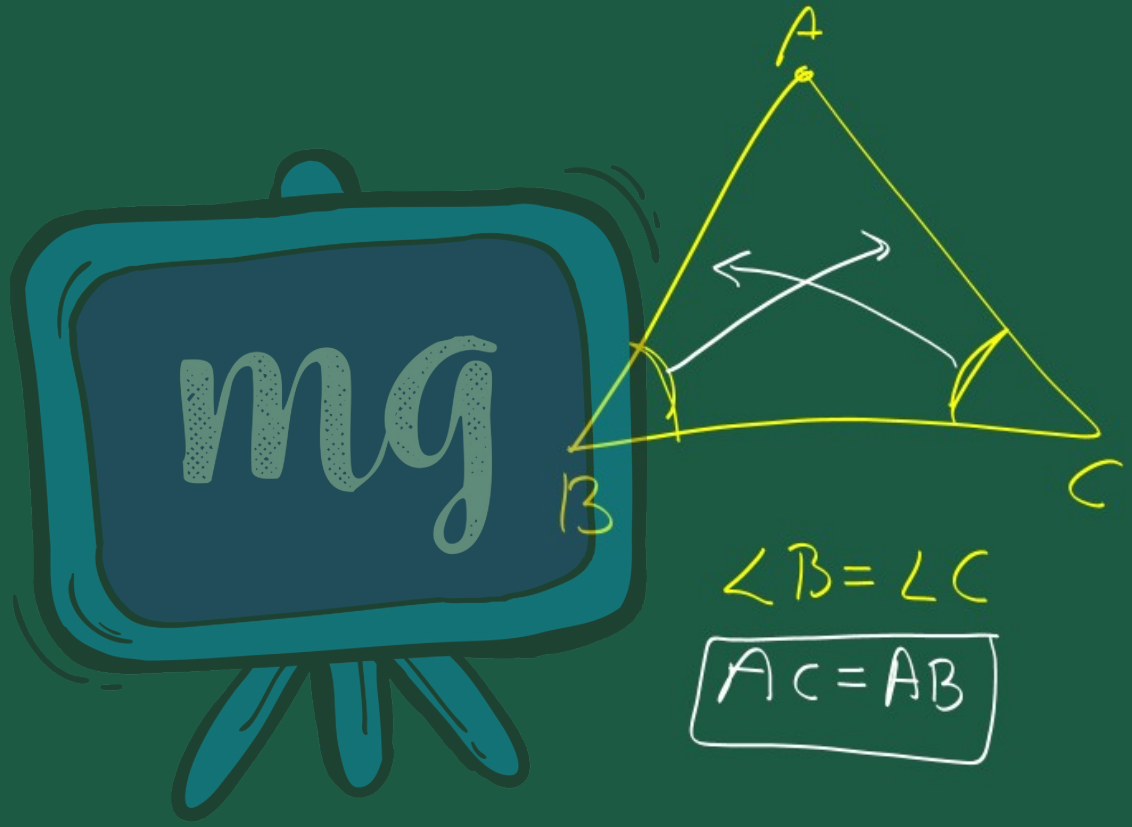
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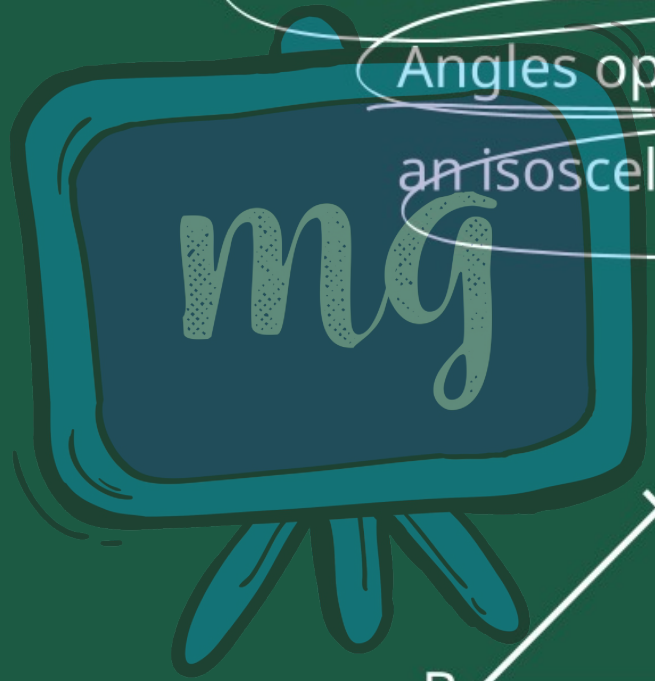


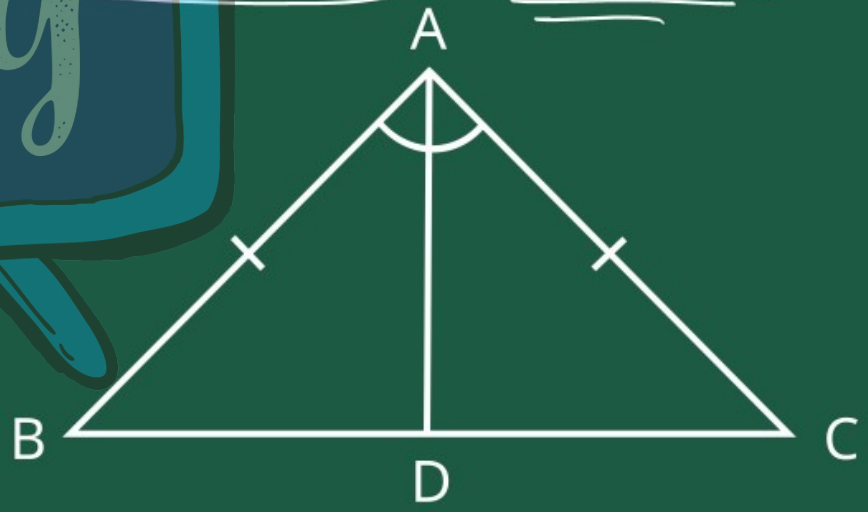
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Theorem : 7.2

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



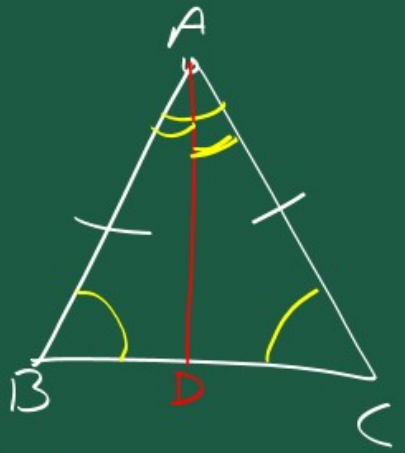


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Given :→ $\triangle ABC$ is isosceles $\triangle$

S.t $AB = AC$.



To prove :→ $\angle B = \angle C$

Construction :→ draw angle bisector of $\angle A$ AD which interect BC at D

$\angle BAD = \angle CAD = \frac{\angle A}{2}$.

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Soln:- In $\triangle ABD$ & $\triangle ACD$

$AB = AC$ [Given]

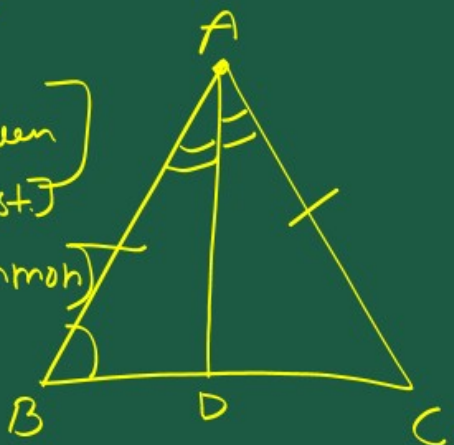
$\angle BAD = \angle CAD$ [By const.]

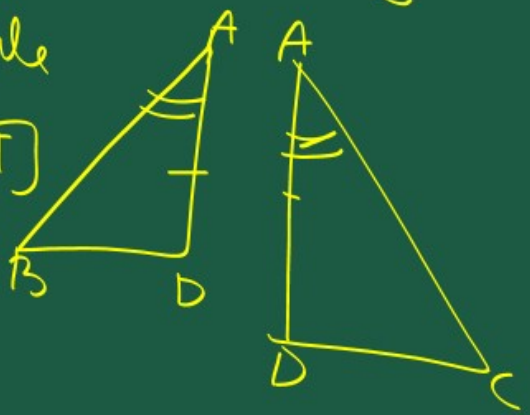
$AD = AD$ [common]

$\triangle ABD \cong \triangle ACD$ By SAS Rule

$\angle B = \angle C$ [By C.P.C.T]

H.P



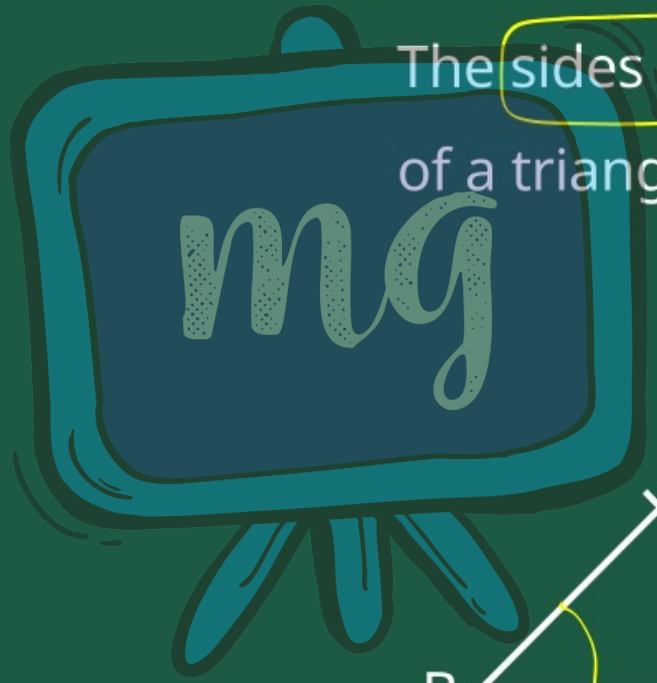


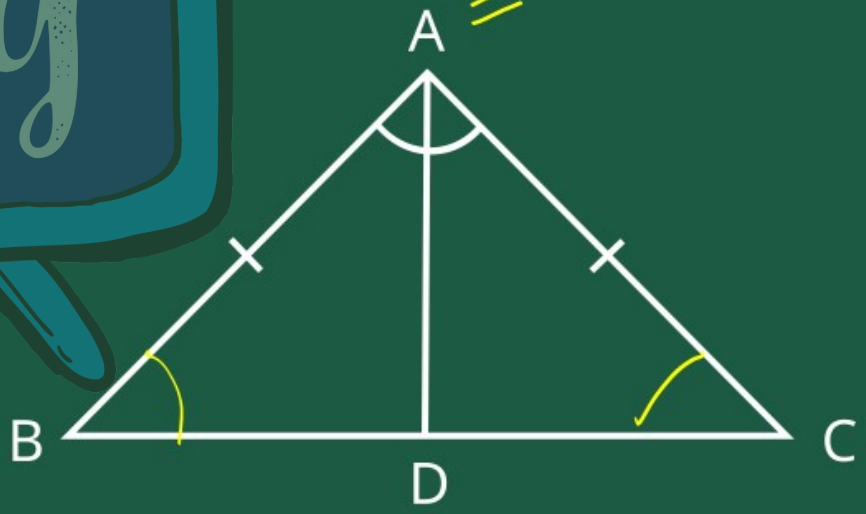
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Theorem : 7.3

The sides opposite to equal angles of a triangle are equal.



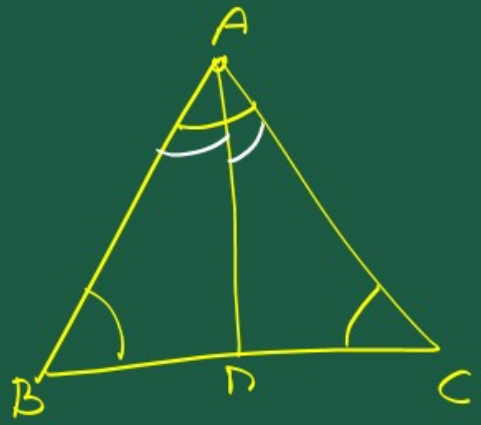


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Given :- In $\triangle ABC$,

$\angle B = \angle C$



To prove :- $AB = AC$

By Construction :-

draw angle bisector of $\angle A$, AD

which intersect BC at D

$\angle BAD = \angle CAD = \frac{\angle A}{2}$

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Sol:→ In $\triangle ABD$ & $\triangle ACD$

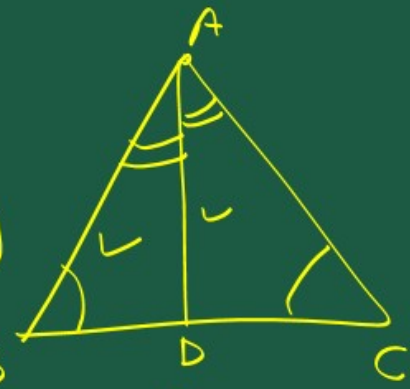
$\angle B = \angle C$ [Given]

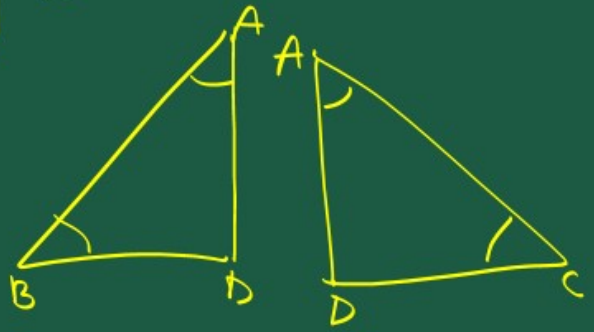
$AD = AD$ [Common]

$\angle BAD = \angle CAD$ [By const.]

$\triangle ABD \cong \triangle ACD$ By AAS Rule

$AB = A($ [C.P.C.T]





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LEARNING OUTCOME

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Some properties of triangles

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ASSESSMENT

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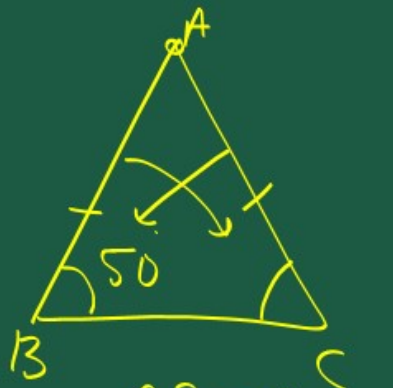
1 In ΔABC, $AB = AC$ and $\angle B = 50°$. Then $\angle C$ is equal to

A 40°

B 50°

C 80°

D 130°



$AB = AC$

$\angle C = \angle B$

$\angle C = 50°$

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ASSESSMENT

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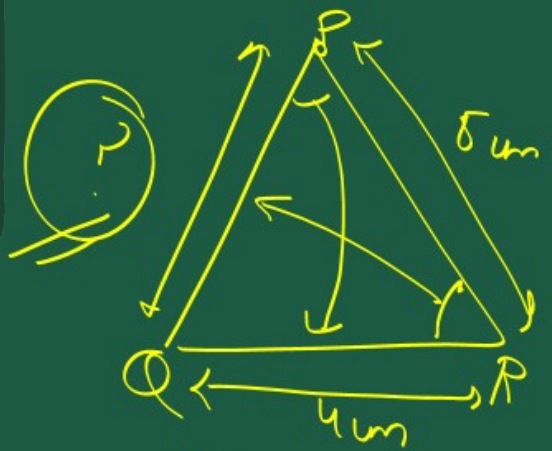
2 In ΔPQR, $\angle R = \angle P$ and QR = 4 cm and PR = 5 cm. Then what is the length of PQ?

A 2 cm

B 2.5 cm

C 4 cm

D 5 cm



$\angle R = \angle P$

$PQ = QR$

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ASSESSMENT

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3 The angles opposite to equal sides of a triangle are:



A Equal

B Unequal

C Complementary angles

D Complementary angles