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Isosceles and Equilateral Triangles

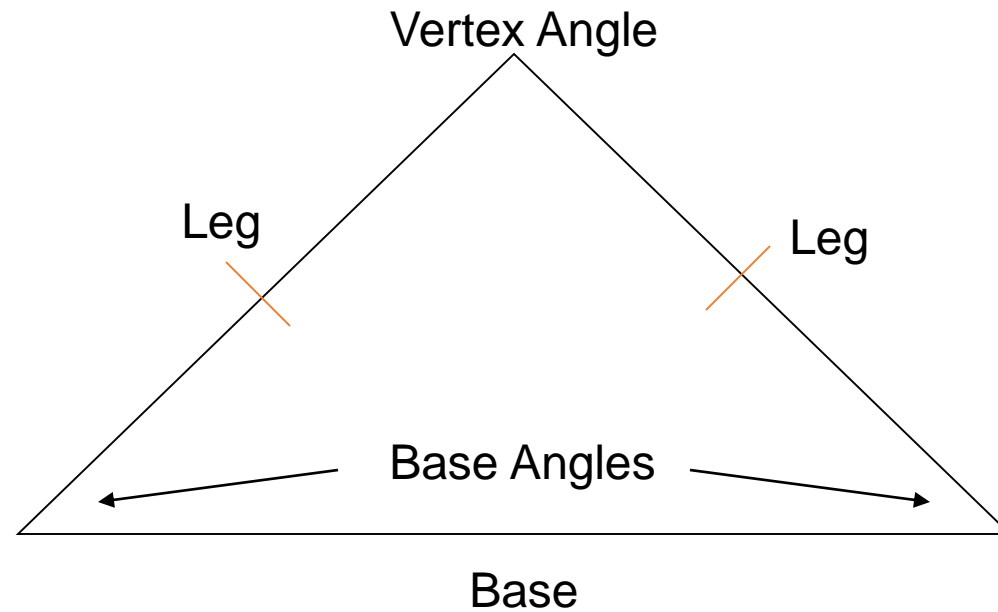
Congruent Triangles



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Isosceles and Equilateral Triangles

Isosceles Triangle:



The Base Angles are Congruent

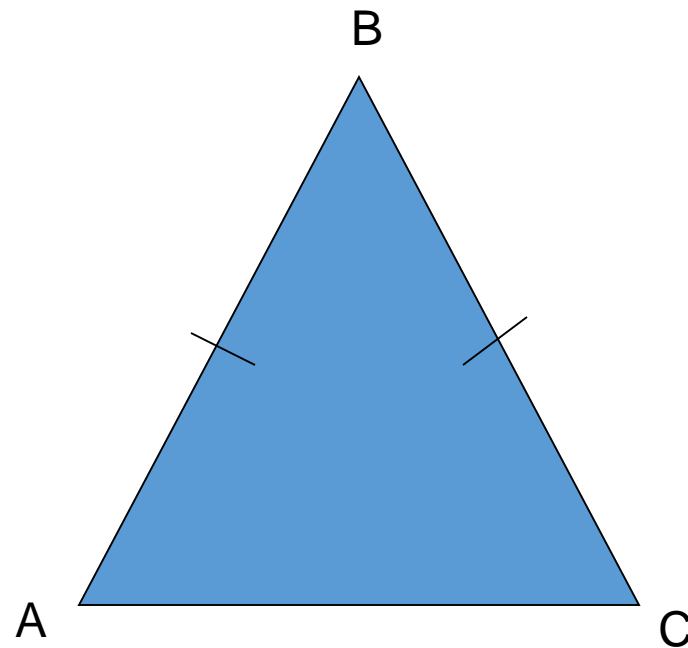


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Isosceles Triangles

- Theorem Isosceles Triangle Theorem

If two sides of a triangle are congruent, then the angles opposite those sides are congruent



$$\angle A = \angle C$$



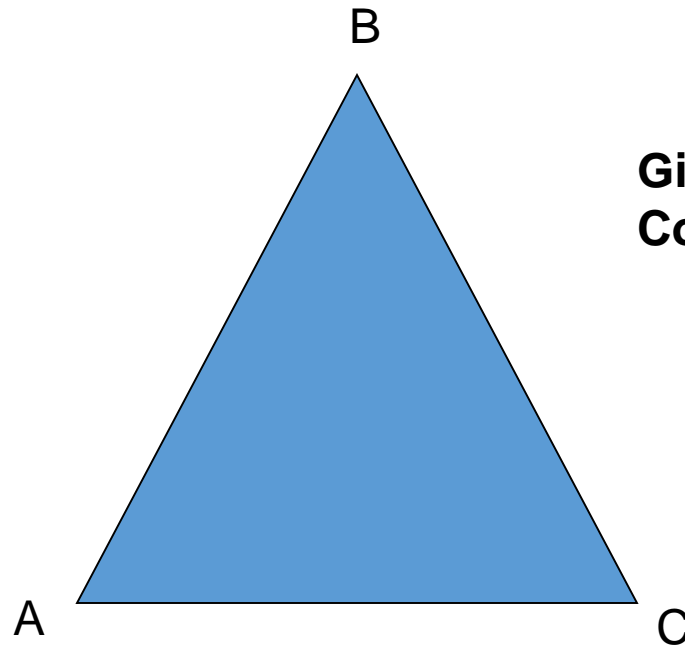
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Isosceles Triangles

- Theorem Converse of the Isosceles Theorem

Triangle

If two angles of a triangle are congruent, then the sides opposite those angles are congruent



Given: $\angle A = \angle C$

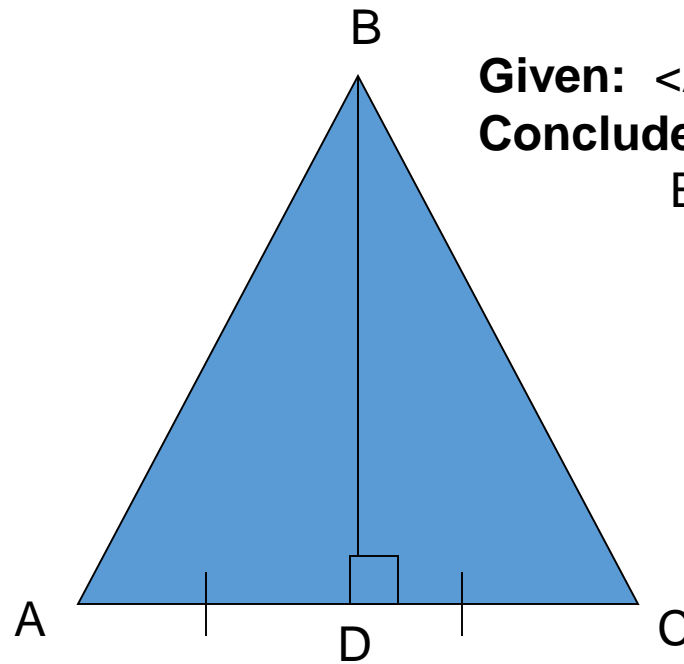
Conclude: $AB = CB$



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Isosceles Triangles

- **Theorem** The bisector of the vertex angle of an isosceles triangle is the perpendicular bisector of the base



Given: $\angle ABD = \angle CBD$

Conclude: $AD = DC$ and
 BD is \perp to AC



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Equilateral Triangles

- Corollary: Statement that immediately follows a theorem

Corollary to Theorem :

If a triangle is equilateral, then the triangle is equiangular

Corollary to Theorem :

If a triangle is equiangular, then the triangle is equilateral



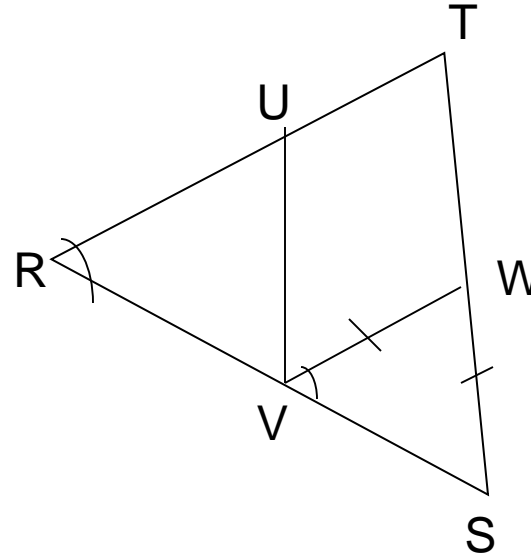
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Using Isosceles Triangle Theorems

Explain why $\triangle RST$ is isosceles.

Given: $\angle R = \angle WVS$,
 $VW = SW$

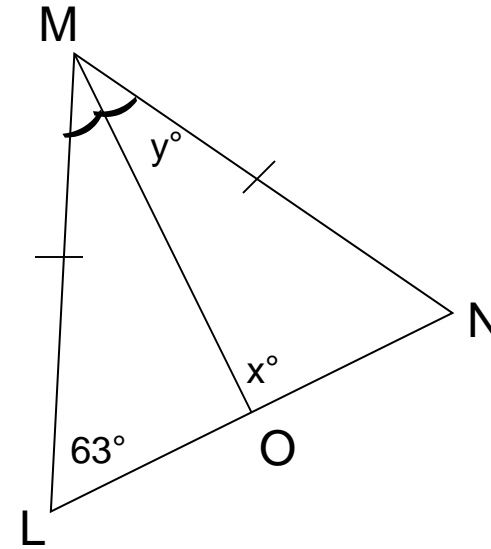
Prove: $\triangle RST$ is isosceles





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Find the values of x and y :





James Madison HIGH SCHOOL Landscaping

A landscaper uses rectangles and equilateral triangles for the path around the hexagonal garden. Find the value of x .

