4.3 Isosceles and Equilateral Triangles

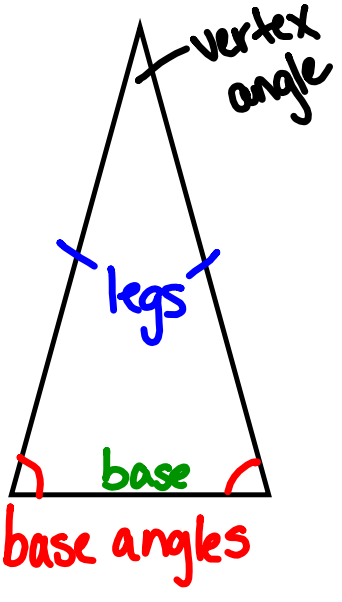
Objective: Use properties of isosceles and equilateral triangles.

The congruent sides of an isosceles triangle are called <u>legs</u>.

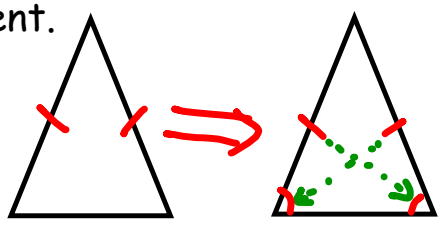
The other side is called the <u>base</u>.

The two angles formed by the base of the triangle are called the <u>base angles</u>.

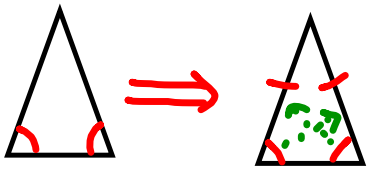
The angle included in the legs is called the <u>vertex angle</u>.



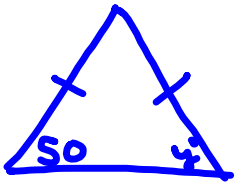
Base Angles Theorem: If two sides of a triangle are congruent, then the angles opposite them are congruent.



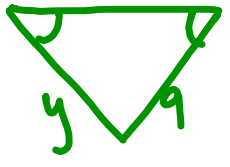
Converse of the Base Angles Theorem: If two angles of a triangle are congruent, then the sides opposite them are congruent.



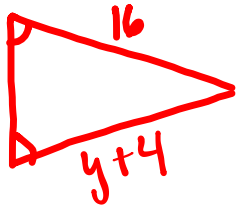
Checkpoint at the bottom of page 186.

1. 

$y = 50°$

2. 

$y = 9$

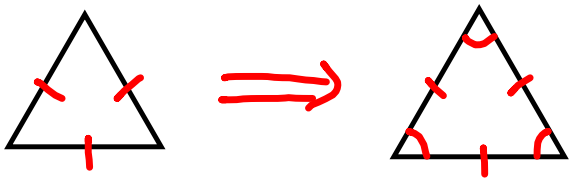
3. 

$y + 4 = 16$

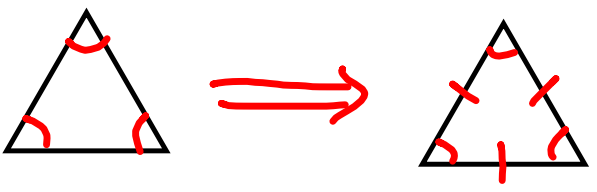
$-4 \quad -4$

$y = 12$

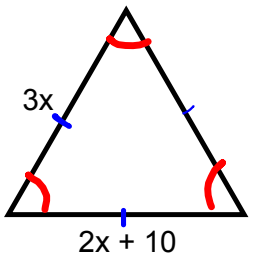
Equilateral Theorem: If a triangle is equilateral, then it is equiangular.



Equiangular Theorem: If a triangle is equiangular, then it is equilateral.



Example: Find the values of the variables.

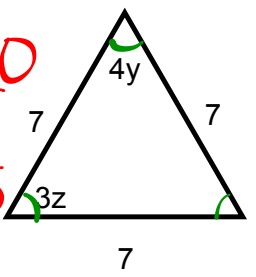


$3x = 2x + 10$
$-2x \quad -2x$

$x = 10$

$\frac{4y}{4} = \frac{60}{4}$

$y = 15$



$\frac{180}{3} = 60$

$\frac{3z}{3} = \frac{60}{3}$

$z = 20$

Name

4.3

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