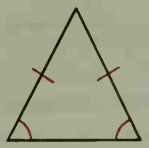
Special Triangle Relationships (pages 93, 135–136, 290, 295, 300)

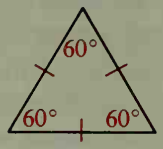
Isosceles Triangle



At least 2 sides are congruent.

Angles opposite congruent sides are congruent.

Equilateral Triangle



All sides are congruent.

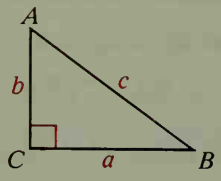
All angles are congruent.

By the Pythagorean Theorem, in $\triangle ABC$

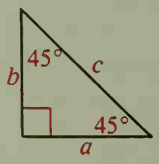
$$c^2 = a^2 + b^2.$$

Since $\angle C$ is a right angle,

$$m\angle A + m\angle B = 90.$$



45°-45°-90° Triangle

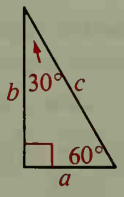


$a = b$
$c = \sqrt{2}\,a$
$= \sqrt{2}\,b$

Legs are congruent.

Hypotenuse = $\sqrt{2}$ · leg

30°-60°-90° Triangle



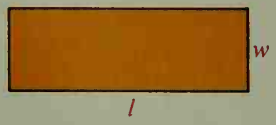
$c = 2a$
$b = \sqrt{3}\,a$

Hypotenuse = 2 · shorter leg

Longer leg = $\sqrt{3}$ · shorter leg

Perimeter, Area, and Volume Formulas (pages 424, 429, 447, 469, 476, 518)

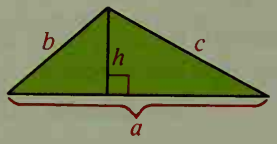
Rectangle



Perimeter = $2l + 2w$

Area = lw

Triangle



Perimeter = $a + b + c$

Area = $\frac{1}{2}$(base × height)
= $\frac{1}{2}ah$