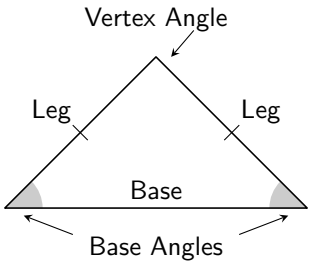
Isosceles and Equilateral Triangles

Today I Can

1. Use and apply properties of isosceles and equilateral triangles.

Isosceles Triangles



Base Angle Theorem

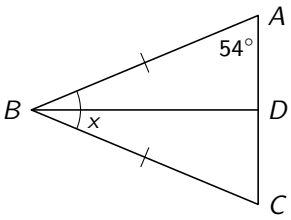
If 2 sides of a triangle are congruent, then the angles across from those sides are congruent.

Base Angle Converse

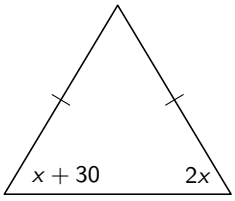
If 2 angles of a triangle are congruent, then the sides across from those angles are congruent.

Example 1. Find the value of x in each.

(a)



(b)



Corollary

A **corollary** is a theorem that can be easily proven using another theorem.

- Corollary to Base Angle Theorem:
  - If a triangle is equilateral then each angle is congruent.
- Corollary to Base Angle Converse:
  - If the 3 angles of a triangle are congruent, then the triangle is equilateral.

Equilateral Triangles

Example 2. The measures of two sides of an equilateral triangle are $3x + 15$ and $7x - 5$.

(a) What is the measure of the 3rd side?

(b) Find the perimeter of the triangle.

(c) What is the measure of each angle?