

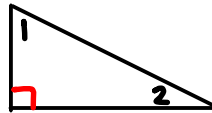
4.2 Angle Measures of Triangles

Objective: Find angle measures in triangles.

Triangle Sum Theorem: The sum of the measures of the angles of a triangle is 180° .

A corollary to a theorem is a statement that can be proved easily using the theorem.

Corollary to the Triangle Sum Theorem: The acute angles of a right triangle are complementary.



$$\begin{array}{r} 90 + \angle 1 + \angle 2 = 180 \\ -90 \qquad -90 \end{array}$$

$$\underline{\angle 1 + \angle 2 = 90}$$

Checkpoint at the bottom of page 180.

$$1. \ m\angle A + 65 + 50 = 180$$

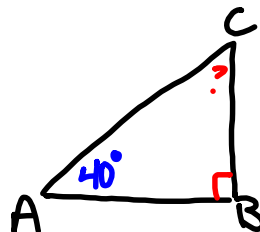
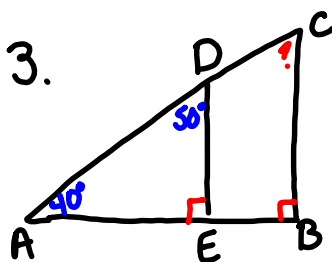
$$\begin{array}{r} m\angle A + 115 = 180 \\ -115 \quad -115 \end{array}$$

$$m\angle A = 65^\circ$$

$$2. \ m\angle B + 45 + 60 = 180$$

$$\begin{array}{r} m\angle B + 105 = 180 \\ -105 \quad -105 \end{array}$$

$$m\angle B = 75^\circ$$



$$m\angle C + 90 + 40 = 180$$

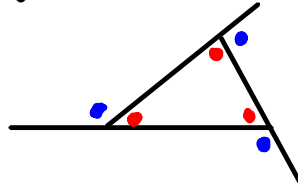
$$\begin{array}{r} m\angle C + 130 = 180 \\ -130 \quad -130 \end{array}$$

$$m\angle C = 50^\circ$$

When the sides of a triangle are extended, other angles are formed.

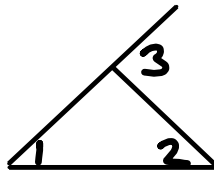
The three original angles of the triangle are interior angles.

The angles that are ^{next to} adjacent to the interior angles are the exterior angles.



Exterior Angle Theorem: The measure of an exterior angle of a triangle is equal to the sum of the measures of the two nonadjacent interior angles.

$$\angle 1 + \angle 2 = \angle 3$$



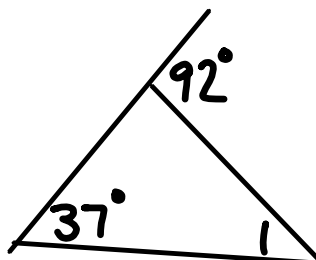
Checkpoint at the bottom of page 181.

$$4. 60 + 60 = m\angle 2$$

$$120^\circ = m\angle 2$$

$$5. 125 + 30 = m\angle 3$$

$$155^\circ = m\angle 3$$



Find $m\angle 1$.

$$m\angle 1 + 37 = 92$$

$$\quad - 37 \quad - 37$$

$$m\angle 1 = 55^\circ$$

Name

4.2

pg. 182-184 # 2-21

23-26

Notes 4.3