The angles in a triangle add to 180°. This is important to know when there are triangles given.

Example 1: Determine the measures of the unknown angles in triangle MAT.

$\angle ATM = 180 - 155 = 25$

$\angle MAT = 180 - 40 - 25 = 115$

M
40°

115   25   155°
A   T   H

Example 2: Determine the relationship between an exterior angle of a triangle and its non-adjacent interior angles.

outside

not beside inside

$d + c = 180 \Rightarrow c = \boxed{180 - d}$

$a + b + c = 180$

$a + b + (180 - d) = 180$

$a + b + 180 - d = 180$
$\quad\quad -180 \quad\quad -180$

$a + b - d = 0$
$\quad +d \quad +d$

$a + b = d$

a

(ext) d c   b

Example 3: Determine the measures of the angles NMO, MNO, and QMO.

$113 - 94 = 19$

$\angle NMO = 94°$

$\angle MNO = 47°$

$\angle QMO = 19°$

L   M   67°   Q
$180 - 47 - 39$
$= 94$

113   47
N 20°
39° O
P
R