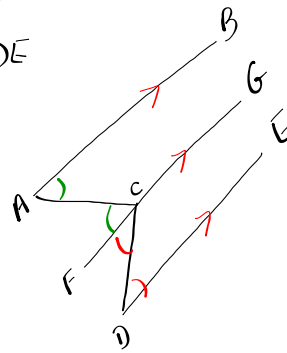


P81

16. Given: $AB \parallel DE$ and $DE \parallel FG$

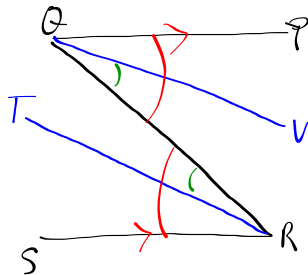
Prove: $\angle ACD = \angle BAC + \angle CDE$



Statement	Justification
$AB \parallel DE$	given
$DE \parallel FG$	given
$AB \parallel FG$	transitive property
$\angle BAC = \angle ACF$	alternate interior angles
$\angle CDE = \angle DCF$	alternate interior angles
$\angle ACD = \angle ACF + \angle DCF$	additive angles. (angle addition)
$\angle ACD = \angle BAC + \angle CDE$	substitution

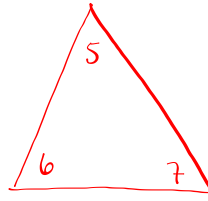
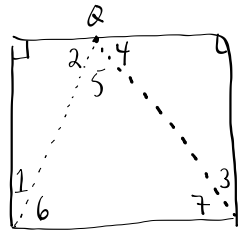
18. Given: $QP \parallel SR$
 RT bisects $\angle QRS$
 QU bisects $\angle PQR$

Prove: $QU \parallel RT$



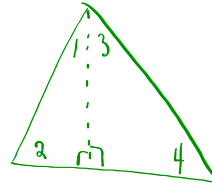
Statement	Justification
$QP \parallel SR$	given
$\angle QRS = \angle PQR$	alternate interior angles.
$\frac{1}{2} \angle QRS = \frac{1}{2} \angle PQR$	equality
$\frac{1}{2} \angle QRS = \angle TRQ$	angle bisector
$\frac{1}{2} \angle PQR = \angle RQU$	angle bisector
$\angle TRQ = \angle RQU$	transitive property
$QU \parallel RT$	alternate interior angles.

§2.3 Angle Properties in Triangles



$$\angle 5 + \angle 6 + \angle 7 = (\angle 1 + \angle 3) + \angle 2 + \angle 4$$

$$\angle 1 + \angle 3 = \angle 5$$



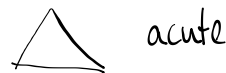
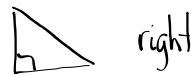
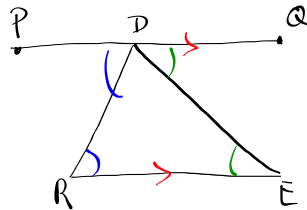
$$\angle 5 + \angle 6 + \angle 7 = \angle 5 + \angle 2 + \angle 4$$

$$\angle 5 + \angle 2 + \angle 4 = 180^\circ$$

$$\angle 5 + \angle 6 + \angle 7 = 180^\circ$$

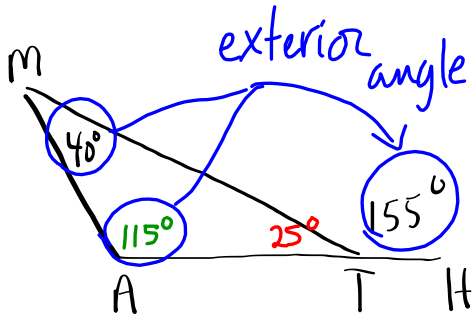
The interior angles in a triangle add up to 180° .

* Prove that the sum of the interior angles in a triangle is 180°



Statement	Justification
$PQ \parallel RE$	given
$\angle PDR + \angle RDE + \angle QDE = 180^\circ$	linear
$\angle QDE = \angle DER$	alternate interior angles.
$\angle PDR = \angle DRE$	alternate interior angles.
$\angle DRE + \angle RDE + \angle DER = 180^\circ$	substitution

Example 1 (p87)



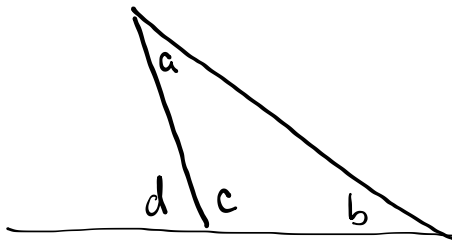
Determine the unknown angles.

$$\angle MTA = 180^\circ - 155^\circ = 25^\circ \text{ (linear)}$$

$$\begin{aligned} \angle MAT &= 180^\circ - (40^\circ + 25^\circ) \\ &= 180^\circ - 65^\circ \\ &= 115^\circ \end{aligned}$$

(sum of interior angles is 180°)

Example 2 (p88)



$$\angle d + \angle c = 180^\circ \text{ (linear)}$$

$$\angle a + \angle b + \angle c = 180^\circ \text{ (sum in } \triangle)$$

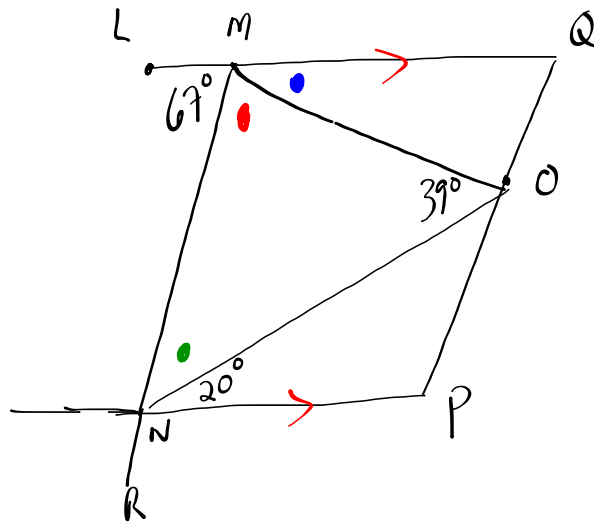
$$\angle a + \angle b + \angle c = \angle d + \angle c \text{ (transitive)}$$

$$\angle a + \angle b = \angle d \text{ (subtraction)}$$

The measure of an exterior angle of a triangle is equal to the sum of the measures of the two non-adjacent interior angles.

Example 3 (p88)

Find $\angle NMO$,
 $\angle MNO$ and
 $\angle QMO$



$\angle MNO = 47^\circ$
 (alternate inte. angle)

$\angle NMO = 94^\circ$
 (sum of angles in \triangle)

$\angle QMO = 19^\circ$
 (linear angles)

TO DO

① cyu (p90)