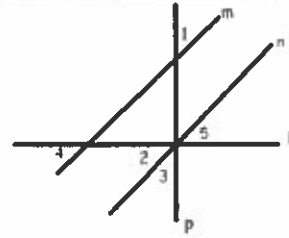


Given:  $h \perp p$  and  $\angle 4 \cong \angle 5$

Prove:  $\angle 1$  is complementary to  $\angle 2$



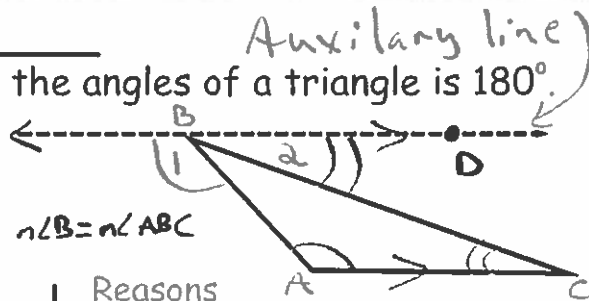
Statements	Reasons
1. $h \perp p$ and $\angle 4 \cong \angle 5$	Given
2. $\angle 3$ is comp. to $\angle 2$	Ext. side $\perp \rightarrow$ adj. comp. $\angle$ s
3. $m \parallel n$	Alt. Ext. $\angle$ s Conv.
4. $\angle 1 \cong \angle 3$	Alt. Ext. $\angle$ s Thm
5. $\angle 1$ is comp. to $\angle 2$	$\cong$ Comp. Conv.

### Triangle Sum Theorem

The sum of the measures of the angles of a triangle is  $180^\circ$ .

Given:  $\triangle ABC$

Prove:  $m\angle A + m\angle B + m\angle C = 180^\circ$   $n\angle B = n\angle ABC$



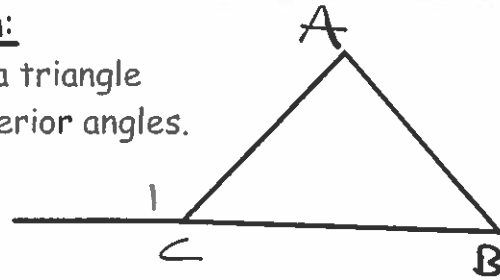
Statements	Reasons
1. $\triangle ABC$	Given
2. Draw $\overleftrightarrow{BD} \parallel \overline{AC}$	$\parallel$ Postulate
3. $m\angle 1 + m\angle ABC + m\angle 2 = 180^\circ$	$\angle$ Add. Post.
4. $\angle 1 \cong \angle A, \angle 2 \cong \angle C$	Alt. Int. $\angle$ s Thm
5. $m\angle 1 = m\angle A, m\angle 2 = m\angle C$	Def. of $\cong \angle$ s
6. $m\angle A + m\angle B + m\angle C = 180^\circ$	Subst. Prop. of $=$ (5 $\rightarrow$ 3)

Exterior Angle of a Triangle Theorem:

The measure of an exterior angle of a triangle equals the sum of the two remote interior angles.

Given:  $\triangle ABC$  with Exterior Angle 1

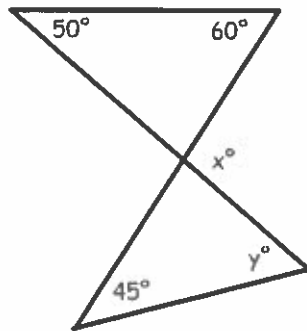
Prove:  $m\angle 1 = m\angle A + m\angle B$



Statements	Reasons
1. $\triangle ABC$ , Ext. $\angle 1$	Given
2. $m\angle A + m\angle B + m\angle C = 180^\circ$	$\triangle$ Sum Thm.
3. $m\angle 1 + m\angle C = 180^\circ$	$\angle$ Add. Post.
4. $m\angle 1 + m\angle C = m\angle A + m\angle B + m\angle C$	Trans. Prop. of =
5. $m\angle C = m\angle C$	Reflexive Prop. of =
6. $m\angle 1 = m\angle A + m\angle B$	Subtr. Prop. of = (4-5)

Find the value of each variable. Provide a reason to justify your answer.

Ex 1:



$$\boxed{1} \quad x = 50 + 60 \quad \left[ \begin{array}{l} \text{Ext. } \angle \text{ of a } \triangle \\ \text{Thm} \end{array} \right]$$

$$\boxed{x = 110}$$

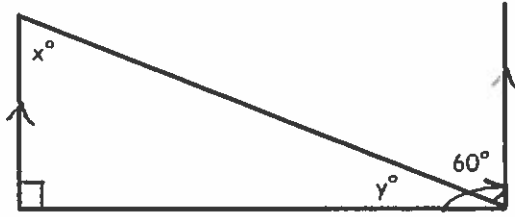
$$\boxed{2} \quad x = y + 45 \quad \left[ \begin{array}{l} \text{Ext. } \angle \text{ of a } \triangle \\ \text{Thm} \end{array} \right]$$

$$110 = y + 45$$

$$\boxed{y = 65}$$

Find the value of each variable. Provide a reason to justify your answer.

Ex 2:



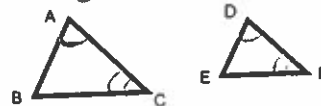
- ①  $90^\circ$  [Rt  $\angle$ ]      ②  $90^\circ$  [SS  $\perp$  Ls]      ③  $y + 60 = 90$  [ $\angle$  Add Post.]
- $y = 30$
- ④  $x = 60$  [Alt. Int. Ls Thm]

### Third Angles Theorem

If two angles of one triangle are congruent to two angles of another triangle, then the third angles are congruent.

Given:  $\angle A \cong \angle D$  and  $\angle C \cong \angle F$

Prove:  $\angle B \cong \angle E$

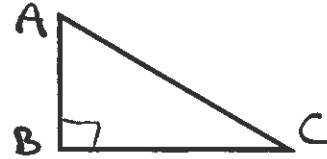


Statements	Reasons
1. $\angle A \cong \angle D, \angle C \cong \angle F$	Given
2. $m\angle A = m\angle D, m\angle C = m\angle F$	Def. of $\cong \angle$ s
3. $m\angle A + m\angle B + m\angle C = 180^\circ$ $m\angle D + m\angle E + m\angle F = 180^\circ$	$\Delta$ Sum Thm
4. $m\angle A + m\angle B + m\angle C = m\angle D + m\angle E + m\angle F$	Trans. Prop. of =
5. $m\angle B = m\angle E$	Subtr. Prop. of = (4 - 2, 2)
6. $\angle B \cong \angle E$	Def. of $\cong \angle$ s

Theorem: The acute angles of a right triangle are complementary.

Given: Right Triangle ABC with Right Angle B

Prove:  $\angle A$  and  $\angle C$  are complementary.



Statements	Reasons
1. $\triangle ABC$ , $\angle B$ is a Rt. $\angle$	Given
2. $m\angle B = 90^\circ$	Def. of Rt $\angle$
3. $m\angle A + m\angle B + m\angle C = 180^\circ$	$\Delta$ sum Thm
4. $m\angle A + m\angle C = 90^\circ$	Subtr. Prop. of = (3-2)
5. $\angle A$ and $\angle C$ are Comp.	Def. of Comp. $\angle$ s

Acute  $\angle$ s of Rt  $\Delta$  are comp.

### Assignment #26

R and TN p. 93-95.

Complete p. 97-99 WE #5-16, 23-26, 29-32.