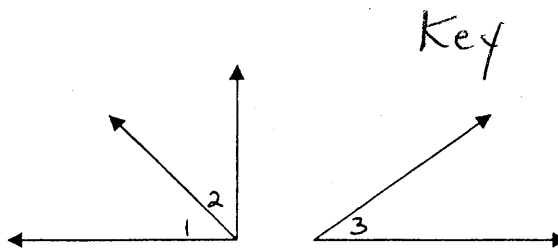


Write a two-column proof:

1) Given:  $m\angle 3$  and  $m\angle 2$  are complementary

$$m\angle 1 + m\angle 2 = 90^\circ$$

Prove:  $m\angle 3 \cong m\angle 1$



Statements

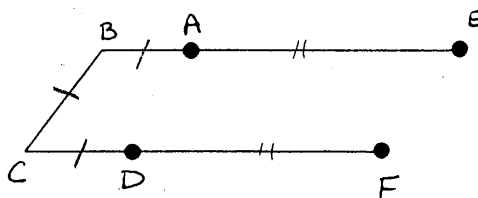
1.  $m\angle 3$  &  $m\angle 2$  complementary
2.  $m\angle 3 + m\angle 2 = 90^\circ$
3.  $m\angle 1 + m\angle 2 = 90^\circ$
4.  $m\angle 1 + m\angle 2 = m\angle 3 + m\angle 2$
5.  $m\angle 2 = m\angle 2$
6.  $m\angle 3 = m\angle 1$

Reasons

1. given
2. Def. of comp angles
3. given
4. Substitution prop.
5. Reflexive Prop.
6. Subtraction Prop.

2. Given:  $\overline{BA} \cong \overline{BC}$ ,  $\overline{BC} \cong \overline{CD}$ ,  $\overline{AE} \cong \overline{DF}$

Prove:  $\overline{BE} \cong \overline{CF}$



Statements

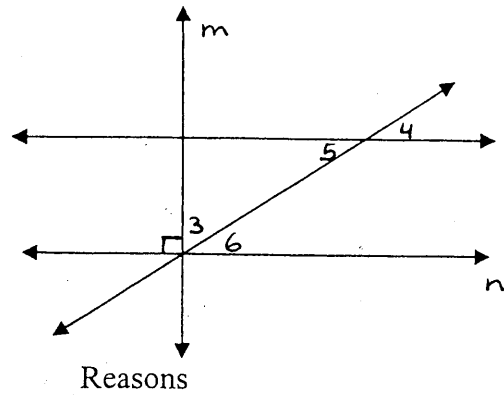
1.  $\overline{BA} \cong \overline{BC}$ ,  $\overline{BC} \cong \overline{CD}$ ,  $\overline{AE} \cong \overline{DF}$
2.  $BA = BC$ ,  $BC = CD$ ,  $AE = DF$
3.  $BA + AE = BE$ ;  $CD + DF = CF$
4.  $BA = CD$
5.  $BE = CF$
6.  $\overline{BE} \cong \overline{CF}$

Reasons

1. given
2. def. of congruence
3. Segment Addition Post.
4. Substitution
5. Substitution
6. Def. of congruence

3) Given:  $m \perp n$ ,  $\angle 3$  and  $\angle 4$  are complementary.

Prove:  $\angle 5 \cong \angle 6$



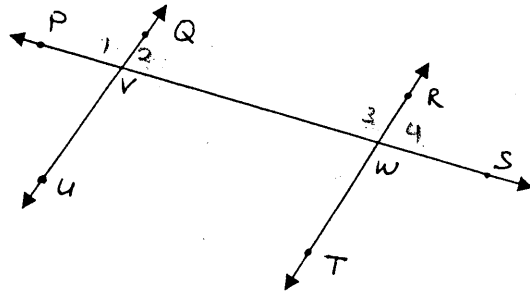
Statements

1.  $m \perp n$
2.  $m\angle 3 + m\angle 6 = 90^\circ$
3.  $\angle 3$  and  $\angle 6$  are comp. angles
4.  $\angle 5 \cong \angle 4$
5.  $\angle 3$  and  $\angle 4$  are comp. angles
6.  $\angle 6 \cong \angle 4$
7.  $\angle 5 \cong \angle 6$

- Reasons
1. given
  2. Def. of  $\perp$  lines
  3. Def. of comp. angles
  4. Vertical angles are  $\cong$
  5. given
  6. 2 angles complement to the same angles are  $\cong$ .
  7. Symmetric & Transitive Prop

4) Given:  $\angle QVW$  and  $\angle RWV$  are supplementary.

Prove:  $\angle QVP \cong \angle RWV$



Statements

1.  $\angle 2$  &  $\angle 3$  are supp.
2.  $\angle 1$  &  $\angle 2$  are supp.
3.  $m\angle 2 + m\angle 3 = 180^\circ$   
 $m\angle 1 + m\angle 2 = 180^\circ$
4.  $m\angle 2 + m\angle 3 = m\angle 1 + m\angle 2$
5.  $m\angle 3 = m\angle 1$
6.  $\angle 3 \cong \angle 1$

Reasons

1. given
2. Angle Addition Post.
3. Def. of supp. angles
4. Substitution Prop.
5. Subtraction Prop.
6. Def. of congruence