

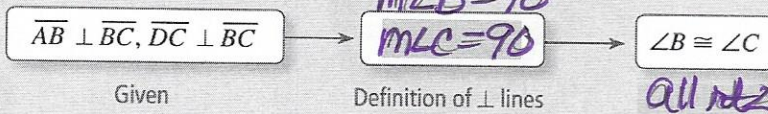
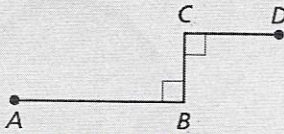
SELF-ASSESSMENT

- 1 I don't understand yet. 2 I can do it with help. 3 I can do it on my own. 4 I can teach someone else.

1. Complete the flowchart proof. Then write a two-column proof.

Given $\overline{AB} \perp \overline{BC}, \overline{DC} \perp \overline{BC}$

Prove $\angle B \cong \angle C$

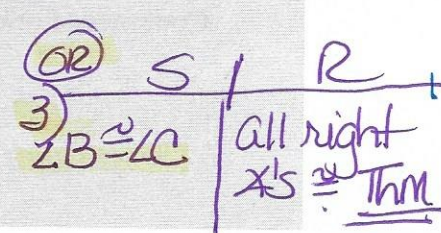


STATEMENTS

REASONS

- 1) $\overline{AB} \perp \overline{BC}, \overline{DC} \perp \overline{BC}$
- 2) $m\angle B = 90^\circ$
 $m\angle C = 90^\circ$
- 3) $m\angle B = m\angle C$
- 4) $\angle B \cong \angle C$

- 1) Given.
- 2) Def \perp lines.
- 3) substitution Prop. (\equiv)
- 4) Def of congruence.



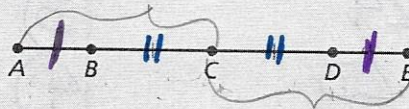
SELF-ASSESSMENT

- 1 I don't understand yet. 2 I can do it with help. 3 I can do it on my own. 4 I can teach someone else.

2. Complete the two-column proof. Then write a flowchart proof.

Given $AB = DE, BC = CD$

Prove $\overline{AC} \cong \overline{CE}$



STATEMENTS

REASONS

1. $AB = DE, BC = CD$
2. $AB + BC = BC + DE$
3. $CD + DE = DE + BC$
4. $AB + BC = AC, CD + DE = CE$
5. $AC = CE$
6. $\overline{AC} \cong \overline{CE}$

1. Given
2. Addition Property of Equality
3. Substitution Property of Equality
4. Transitive prop (\equiv)
5. Substitution Property of Equality
6. Def of \cong .

3) Rewrite the following paragraph proof as a two column proof:

EXAMPLE 5

Using the Vertical Angles Congruence Theorem



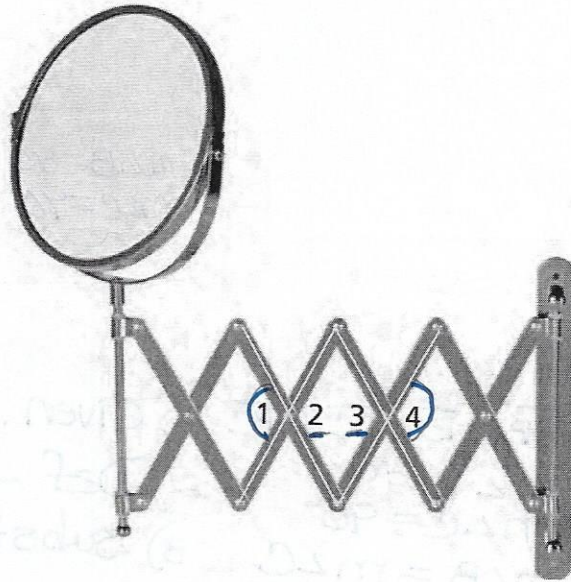
Write a paragraph proof.

Given $\angle 1 \cong \angle 4$

Prove $\angle 2 \cong \angle 3$

Paragraph Proof

$\angle 1$ and $\angle 4$ are congruent. By the Vertical Angles Congruence Theorem, $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$. By the Transitive Property of Angle Congruence, $\angle 2 \cong \angle 4$. Using the Transitive Property of Angle Congruence once more, $\angle 2 \cong \angle 3$.



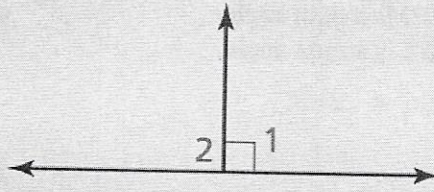
Statements	Reasons
1) $\angle 1 \cong \angle 4$	1) Given
2) $\angle 1 \cong \angle 2$ & $\angle 3 \cong \angle 4$	2) VA Thm.
3) $\angle 2 \cong \angle 4$	3) Transitive Prop. \cong
4) $\angle 2 \cong \angle 3$	4) transitive Prop. \cong

4.

Write a paragraph proof.

Given $\angle 1$ is a right angle.

Prove $\angle 2$ is a right angle.



$\angle 1$ is a right \angle . By Def. of LP, $\angle 1$ & $\angle 2$ are (LP) of str.
 since $m\angle 1 = 90^\circ$ (def right \angle) and $m\angle 1 + m\angle 2 = 180$; $m\angle 2 = 90$
 (L.P. Thm) subtract. prop. =.
 So, $\angle 2$ is a right \angle by def of right \angle 's.

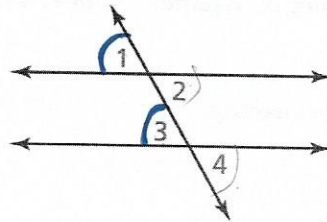
Q.E.D.

5.

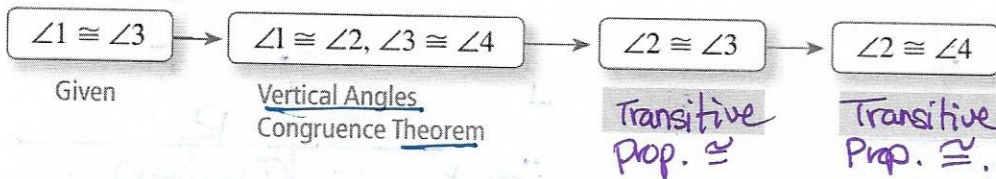
17. **PROOF** Complete the flowchart proof. Then write a two-column proof. (See Example 1.)

Given $\angle 1 \cong \angle 3$

Prove $\angle 2 \cong \angle 4$



Transitive
 $4 = 3$
 $1 = 2$
 $2 = 3$
 $3 = 4$
 $\therefore 4 = 2$
 Transitive



STATEMENTS

REASONS

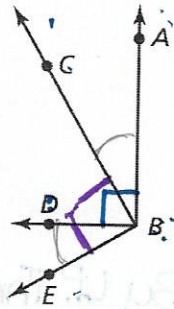
- 1) $\angle 1 \cong \angle 3$
- 2) $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$
- 3) $\angle 2 \cong \angle 3$
- 4) $\angle 2 \cong \angle 4$.

- 1) Given
- 2) VA Thm.
- 3) Transitive prop (\cong)
- 4) Transitive prop (\cong)

18. **PROOF** Complete the two-column proof. Then write a flowchart proof. (See Example 2.)

Given $\angle ABD$ is a right angle.
 $\angle CBE$ is a right angle.

Prove $\angle ABC \cong \angle DBE$



STATEMENTS

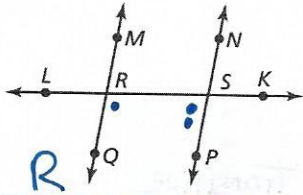
REASONS

1. $\angle ABD$ is a right angle.
 $\angle CBE$ is a right angle.
2. $\angle ABC$ and $\angle CBD$ are complementary.
3. $\angle DBE$ and $\angle CBD$ are complementary.
4. $\angle ABC \cong \angle DBE$

1. Given.
2. Definition of complementary angles
3. Def. of compl. \angle 's.
4. Congruent Complements Thm.

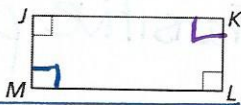
Do the following problems on your own paper (number them with the stated numbers) AS TWO COLUMN PROOFS

23. **Given** $\angle QRS$ and $\angle PSR$ are supplementary.
Prove $\angle QRL \cong \angle PSR$



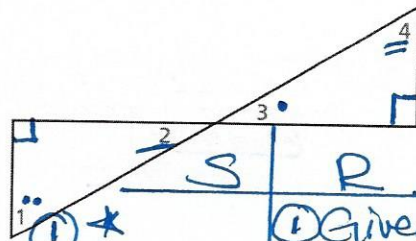
<p>S</p> <ol style="list-style-type: none"> 1) $\angle QRS$ & $\angle PSR$ are <u>Supp.</u> 2) $\angle QRL$ & $\angle QRS$ are L.P. \therefore <u>Supp.</u> 3) $\angle QRL \cong \angle PSR$. 	<p>R</p> <ol style="list-style-type: none"> 1) <u>Given</u> 2) <u>L.P. Def</u> & <u>L.P. Thm</u> 3) <u>Congruent Suppl. Thm.</u>
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25. **Given** $\overline{JK} \perp \overline{JM}$, $\overline{KL} \perp \overline{ML}$,
 $\angle J \cong \angle M$, $\angle K \cong \angle L$
Prove $\overline{JM} \perp \overline{ML}$ and $\overline{JK} \perp \overline{KL}$



<p>S</p> <ol style="list-style-type: none"> 1) <u>L part</u> 2) $\angle J$ & $\angle L$ are <u>right \angle's</u> 3) $\angle J \cong \angle M$, $\angle K \cong \angle L$ 4) $\angle K$ & $\angle M$ are <u>right \angle's</u>. 5) $\overline{JM} \perp \overline{ML}$ & $\overline{JK} \perp \overline{KL}$ 	<p>R</p> <ol style="list-style-type: none"> 1) <u>Given</u> 2) <u>Def of \perp lines</u> 3) <u>Given</u> 4) <u>all rt \angle's are \cong</u> 5) <u>Def \perp lines</u>
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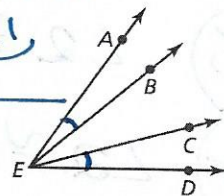
24. **Given** $\angle 1$ and $\angle 3$ are complementary.
 $\angle 2$ and $\angle 4$ are complementary.
Prove $\angle 1 \cong \angle 4$



<p>S</p> <ol style="list-style-type: none"> 1) <u>Given</u> 2) $\angle 2 \cong \angle 3$ 3) $\angle 3 \cong \angle 1$ 4) $\angle 1 \cong \angle 4$ 	<p>R</p> <ol style="list-style-type: none"> 1) <u>Given</u> 2) <u>VA Thm.</u> 3) <u>Trans. Prop.</u> 4) <u>Trans. Prop.</u>
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Extra CREDIT!

26. **Given** $\angle AEB \cong \angle DEC$
Prove $\angle AEC \cong \angle DEB$



<p>S</p> <ol style="list-style-type: none"> 1) $\angle AEB \cong \angle DEC$ 	<p>R</p> <ol style="list-style-type: none"> 1) <u>Given</u>
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