

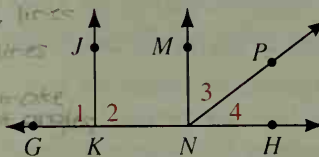
Name the definition or state the theorem that justifies the statement about the diagram.

15. If  $\overrightarrow{KJ} \perp \overrightarrow{GH}$ , then  $\angle 1$  is a right angle. *def. of  $\perp$  lines*

16. If  $\angle 2$  is a  $90^\circ$  angle, then  $\overrightarrow{KJ} \perp \overrightarrow{GH}$ . *def. of  $\perp$  lines*

17. If  $\overrightarrow{NM} \perp \overrightarrow{GH}$ , then  $\angle MNK \cong \angle MNH$ .  *$\perp$  lines create  $\cong$  right angles*

18. If  $\overrightarrow{NM} \perp \overrightarrow{GH}$ , then  $\angle 3$  and  $\angle 4$  are complementary.  *$\perp$  lines create  $\perp$  angles*



2-5

19. Write a plan for a proof.

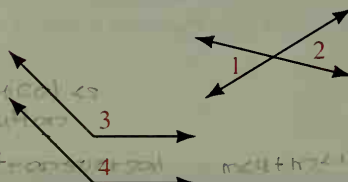
Given:  $\angle 3$  is a supplement of  $\angle 1$ ;

$\angle 4$  is a supplement of  $\angle 2$ .

Prove:  $\angle 3 \cong \angle 4$

20. Write a proof in two-column form for

Exercise 19.



2-6

## Chapter Test

- Use the conditional: Two angles are congruent if they are vertical angles.
  - Write the hypothesis.
  - Write the converse.
- Provide a counterexample to disprove the statement:  
If  $x^2 > 4$ , then  $x > 2$ .
- Write the biconditional as two conditionals that are converses of each other:  
Angles are congruent if and only if their measures are equal.
- Supply reasons to justify the steps:

Steps

Reasons

1.  $y = 12$

1. Given

2.  $5x = 2x + y$

2. Given

3.  $5x = 2x + 12$

3. ?

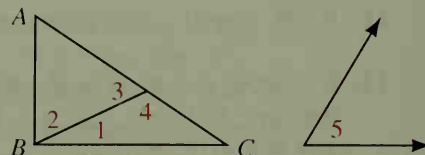
4.  $3x = 12$

4. ?

5.  $x = 4$

5. ?

- $\overrightarrow{OB}$  is the bisector of  $\angle AOC$  and  $\overrightarrow{OC}$  is the bisector of  $\angle BOD$ .  
 $m\angle AOC = 60$ . Find  $m\angle COD$ .
- $S$  is the midpoint of  $\overline{RT}$  and  $W$  is the midpoint of  $\overline{ST}$ . If  $RT = 32$ , find  $ST$ ,  $WT$ , and  $RW$ .
- In the diagram,  $\overline{AB} \perp \overline{BC}$ . Name:
  - two supplementary angles
  - two complementary angles
- Given:  $\angle 5$  is supplementary to  $\angle 4$ .
  - What can you conclude about  $\angle 5$  and  $\angle 3$ ?
  - State the theorem that justifies your conclusion.
- Suppose  $m\angle 3 = 3x + 5$  and  $m\angle 4 = 6x + 13$ . Find the value of  $x$ .



Exs. 7-9