

Sheet 272: Chapter 2 Test

1. Use the conditional: Two angles are congruent if they are vertical angles.
 a. Write the hypothesis. b. Write the converse.

2. Provide a counterexample to disprove the statement:
 If $x^2 > 4$, then $x > 2$.

3. Write the biconditional as two conditionals that are converses of each other:
 Angles are congruent if and only if their measures are equal.

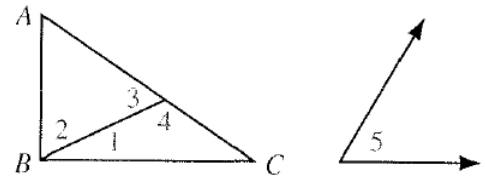
4. Supply reasons to justify the steps:

<i>Steps</i>	<i>Reasons</i>
1. $y = 12$	1. Given
2. $5x = 2x + y$	2. Given
3. $5x = 2x + 12$	3. $\underline{\quad ? \quad}$
4. $3x = 12$	4. $\underline{\quad ? \quad}$
5. $x = 4$	5. $\underline{\quad ? \quad}$

5. \overrightarrow{OB} is the bisector of $\angle AOC$ and \overrightarrow{OC} is the bisector of $\angle BOD$.
 $m\angle AOC = 60$. Find $m\angle COD$.

6. S is the midpoint of \overline{RT} and W is the midpoint of \overline{ST} . If $RT = 32$, find ST , WT , and RW .

7. In the diagram, $\overline{AB} \perp \overline{BC}$. Name:
 a. two supplementary angles
 b. two complementary angles

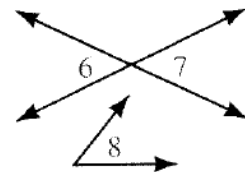


8. Given: $\angle 5$ is supplementary to $\angle 4$.
 a. What can you conclude about $\angle 5$ and $\angle 3$?
 b. State the theorem that justifies your conclusion

9. Suppose $m\angle 3 = 3x + 5$ and $m\angle 4 = 6x + 13$. Find the value of x .

10. State the theorem that justifies the statement $\angle 6 \cong \angle 7$.

11. Suppose you have already stated that $\angle 6 \cong \angle 7$ and $\angle 7 \cong \angle 8$. What property of congruence justifies the conclusion that $\angle 6 \cong \angle 8$?



12. Write a proof in two-column form.

Given: $\overrightarrow{DC} \perp \overleftrightarrow{BD}$; $\angle 1 \cong \angle 2$

Prove: $\overrightarrow{BA} \perp \overleftrightarrow{BD}$

