

Answer Key

Lesson 2.7

Practice Level C

1. The Linear Pair Post. and Vertical Angles Congruence Thm. can be used to deduce that $\angle 5$, $\angle 6$, and $\angle 7$ are right angles. So, $\angle 5$, $\angle 6$, $\angle 7$, and $\angle 8$ are all congruent by the Right Angles Congruence Thm. $\angle 1 \cong \angle 3$ and $\angle 4 \cong \angle 2$ by the Congruent Complements Thm.

2. By the Linear Pair Post., the following are supplementary: $\angle 1$ and $\angle 2$, $\angle 3$ and $\angle 4$, $\angle 5$ and $\angle 6$, $\angle 7$ and $\angle 9$, $\angle 8$ and $\angle 10$. You can deduce that $\angle 4$ is a right angle, so $\angle 3 \cong \angle 4$ by the Right Angles Congruence Thm. By the Congruent Supplements Thm., $\angle 1$, $\angle 6$, $\angle 9$, and $\angle 10$ are congruent and $\angle 2$, $\angle 5$, $\angle 7$, and $\angle 8$ are congruent. **3.** 37° , 90° , 53° , 37° **4.** 56° , 90° , 56° , 34° **5.** 51° , 39° , 90° , 51° **6.** 54° , 36° , 36°

7. $x = 25$, $y = 14$ **8.** $x = 13$, $y = 16$

9. $x = 50$, $y = 53$, $z = 127$

10. $x = 4$, $y = 21$, $z = 71$ **11.** 118° **12.** 96°

13. 84° **14.** 62° **15.** 28° **16.** 56° **17.** yes

18. no **19.** no **20.** no **21.** yes **22.** yes

23. Given; $m\angle STU$; Angle Addition Post.; $40^\circ + 50^\circ$; 90° ; Def. of rt. Angle; $\angle S \cong \angle STU$

24. Sample answer:

1. $\angle 1$ and $\angle 4$ are comp. $\angle 4$ and $\angle 5$ are comp. $\angle 1$ and $\angle 2$ are supp. $\angle 5$ and $\angle 6$ are supp.

$m\angle 1 = 52^\circ$ (Given)

2. $\angle 1 \cong \angle 5$ (Congruent Complements Theorem)

3. $\angle 2 \cong \angle 6$ (Congruent Supplements Theorem)

4. $m\angle 1 + m\angle 2 = 180^\circ$

(Def. of supplementary angles)

5. $52^\circ + m\angle 2 = 180^\circ$ (Subst. Prop. of Equality)

6. $m\angle 2 = 128^\circ$ (Subtraction Prop. of Equality)

7. $m\angle 2 = m\angle 6$ (Def. of congruent angles)

8. $m\angle 6 = 128^\circ$ (Subst. Prop. of Equality)

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