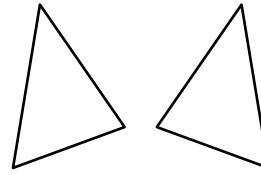


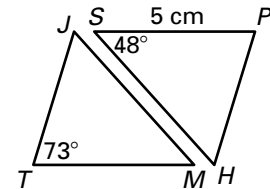
LESSON 4.2 Practice B
For use with pages 235–241

1. Copy the congruent triangles shown at the right. Then label the vertices of your triangles so that $\triangle AMT \cong \triangle CDN$. Identify all pairs of congruent corresponding angles and corresponding sides.

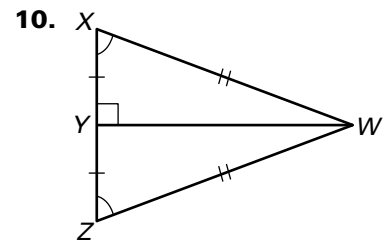
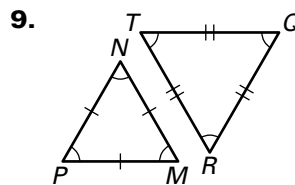
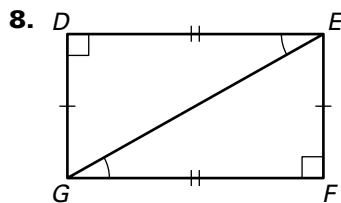


In the diagram, $\triangle TJM \cong \triangle PHS$. Complete the statement.

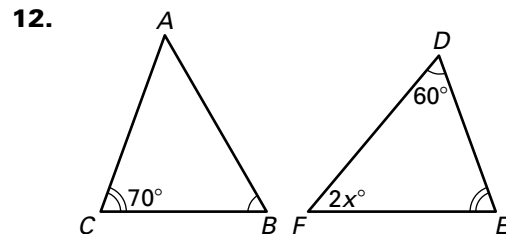
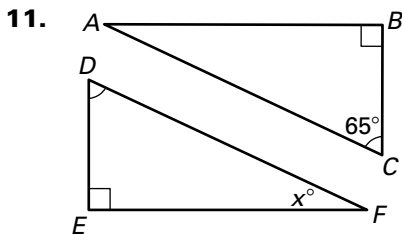
2. $\angle P \cong$?
 3. $\overline{JM} \cong$?
 4. $m\angle M =$?
 5. $m\angle P =$?
 6. $MT =$?
 7. $\triangle HPS \cong$?



Write a congruence statement for any figures that can be proved congruent. Explain your reasoning.

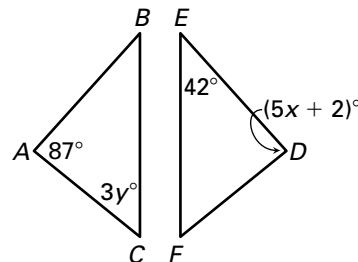


Find the value of x .



In Exercises 13 and 14, use the given information to find the indicated values.

13. Given $\triangle ABC \cong \triangle DEF$, find the values of x and y .

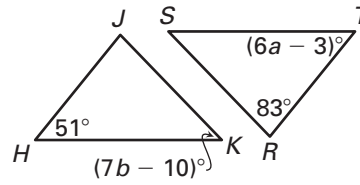


LESSON
4.2

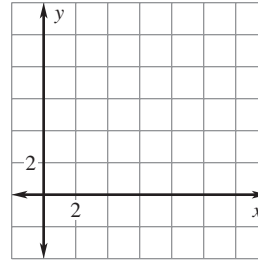
Practice B *continued*

For use with pages 235–241

14. Given $\triangle HJK \cong \triangle TRS$, find the values of a and b .



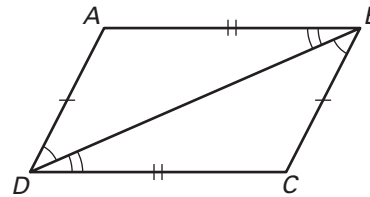
15. Graph the triangle with vertices $A(1, 2)$, $B(7, 2)$, and $C(5, 4)$. Then graph a triangle congruent to $\triangle ABC$. Find the perimeter of $\triangle ABC$ and the triangle congruent to $\triangle ABC$. What do you notice?



16. **Proof** Complete the proof.

GIVEN: $\angle ABD \cong \angle CDB$, $\angle ADB \cong \angle CBD$,
 $\overline{AD} \cong \overline{BC}$, $\overline{AB} \cong \overline{DC}$

PROVE: $\triangle ABD \cong \triangle CDB$



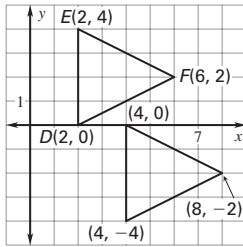
Statements	Reasons
1. $\angle ABD \cong \angle CDB$, $\angle ADB \cong \angle CBD$, $\overline{AD} \cong \overline{BC}$, $\overline{AB} \cong \overline{DC}$	1. Given
2. $\overline{BD} \cong \overline{BD}$	2. ?
3. ?	3. Third Angles Theorem
4. $\triangle ABD \cong \triangle CDB$	4. ?

17. **Carpet Designs** A carpet is made of congruent triangles. One triangular shape is used to make all of the triangles in the design. Which property guarantees that all the triangles are congruent?

Lesson 4.2, continued

15. 19

16. *Sample answer:* The perimeters are the same: $4 + 4\sqrt{5}$, or about 12.9 units.



Practice Level B

1. Check student diagram; $\overline{AM} \cong \overline{CD}$; $\overline{AT} \cong \overline{CN}$; $\overline{MT} \cong \overline{DN}$; $\angle A \cong \angle C$; $\angle M \cong \angle D$; $\angle T \cong \angle N$

2. $\angle T$ 3. \overline{HS} 4. 48° 5. 73° 6. 5 cm

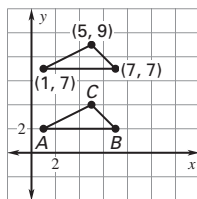
7. $\triangle JTM$ 8. $\triangle DEG \cong \triangle FGE$; all corresponding sides and angles are congruent.

9. none 10. $\triangle XWY \cong \triangle ZWY$; all corresponding sides and angles are congruent.

11. 25 12. 25 13. $x = 17$; $y = 17$

14. $a = 9$; $b = 8$

15. *Sample answer:* The perimeters are the same: $6 + 2\sqrt{2} + 2\sqrt{5}$, or about 13.3 units.



16. Reflexive Property of Congruence; $\angle A \cong \angle C$; Definition of congruent triangles

17. Transitive Property of Congruent Triangles

Practice Level C

1. \overline{IW} 2. $\angle L$ 3. $\angle G$ 4. 33° 5. 4 cm

6. $\triangle IGW$ 7. $\triangle ZTX \cong \triangle WVY$; all corresponding sides and angles are congruent.

8. $CDEF \cong HIJK$; all corresponding sides and angles are congruent. 9. $x = 60$; $y = 66$

10. $x = 2$; $y = 24$ 11. The corresponding sides need to be shown as congruent. 12. 80°

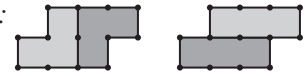
13. Reflexive Property of Congruence; Third Angles Theorem; Definition of Congruent Triangles 14. Definition of Midpoint; Alternate Interior Angles Theorem; Vertical Angles Theorem; Definition of Congruent Triangles

Review for Mastery

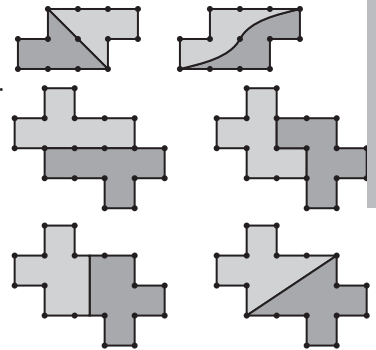
1. 3 2. 5 3. 7 4. 11 5. 65 6. 2

Challenge Practice

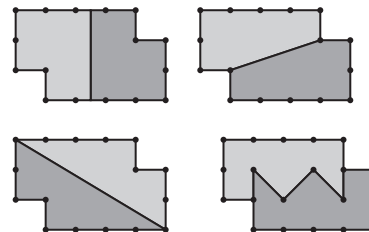
1. *Sample answer:*



2. *Sample answer:*



3. *Sample answer:*



4. 2



5. **a.** Yes. You are given $\triangle ADB \cong \triangle CDA \cong \triangle CDB$. Therefore, $\overline{AB} \cong \overline{BC} \cong \overline{CA}$. Because all three sides of $\triangle ABC$ are congruent, it is equilateral. **b.** 120° **c.** 30° , 30° **d.** Because $\triangle CDB$ is isosceles. **e.** The measure of each of the congruent angles in each small triangle is 30° . By the Angle Addition Postulate, the measure of each angle of $\triangle ABC$ is 60° .

6. **a.** $\overline{EB} \cong \overline{AB}$ and $\overline{EF} \cong \overline{AF}$ because before the paper was folded, \overline{EB} was the same as \overline{AB} and \overline{EF} was the same as \overline{AF} . **b.** $\triangle ABF$ and $\triangle EBF$; $\overline{BF} \cong \overline{BF}$ by the Reflexive Property of Congruence, and $\angle A$ and $\angle BEF$ are congruent by the Third Angles Theorem, so the triangles are congruent by the definition of congruent triangles.

