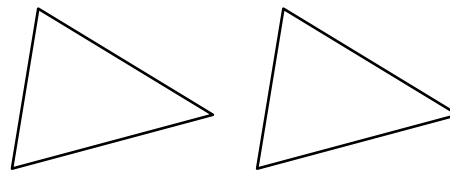


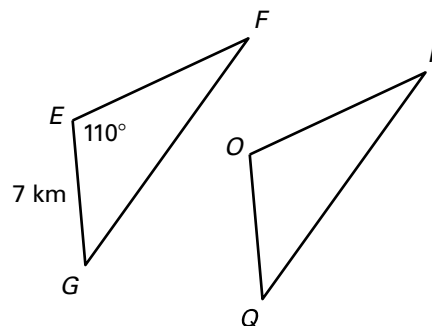
**LESSON 4.2 Practice A**  
For use with pages 235–241

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

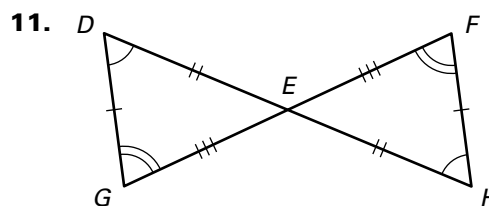
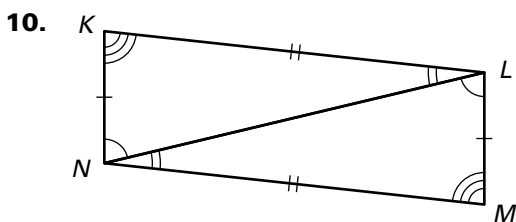
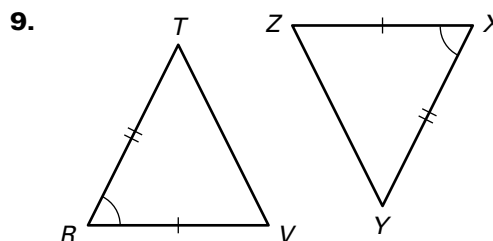
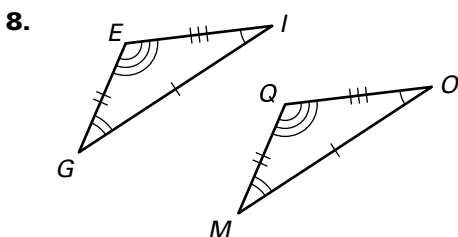


In the diagram,  $\triangle EFG \cong \triangle OPQ$ . Complete the statement.

- $\overline{EF} \cong \underline{\hspace{1cm}}?$
- $\angle P \cong \underline{\hspace{1cm}}?$
- $\angle G \cong \underline{\hspace{1cm}}?$
- $m\angle O = \underline{\hspace{1cm}}?$
- $QO = \underline{\hspace{1cm}}?$
- $\triangle GFE \cong \underline{\hspace{1cm}}?$



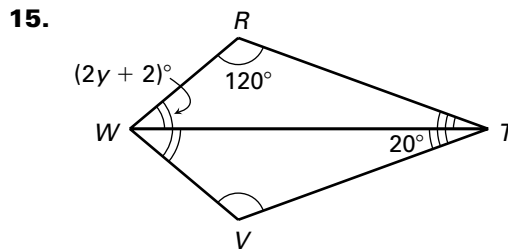
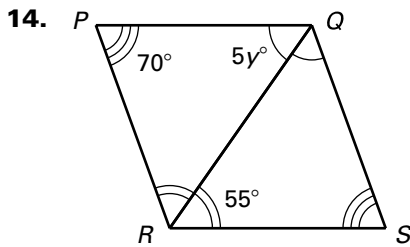
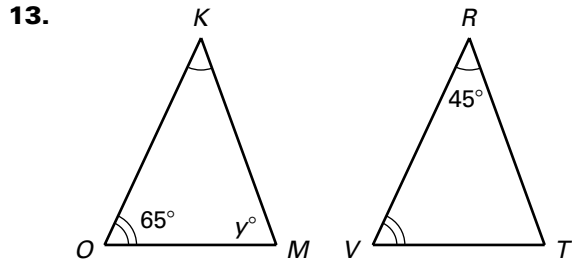
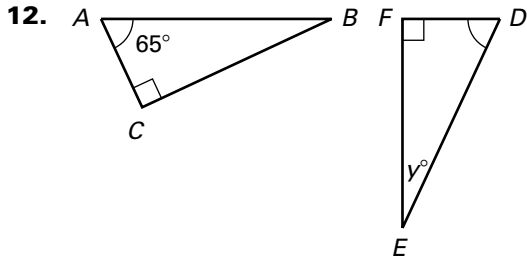
Write a congruence statement for any figures that can be proved congruent. Explain your reasoning.



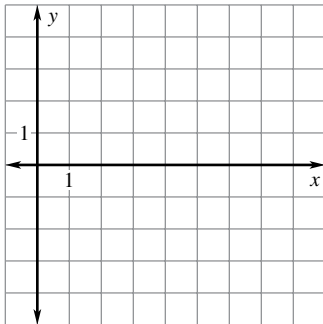
**LESSON**  
**4.2**

**Practice A** *continued*  
*For use with pages 235–241*

**Find the value of  $y$ .**



16. Graph the triangle with vertices  $D(2, 0)$ ,  $E(2, 4)$ , and  $F(6, 2)$ . Then graph a triangle congruent to  $\triangle DEF$ . Find the perimeter of  $\triangle DEF$  and the triangle congruent to  $\triangle DEF$ . What do you notice?



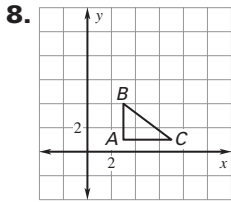
## Lesson 4.1

### Practice Level A

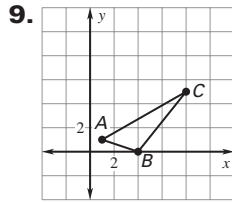
1. equilateral 2. isosceles 3. scalene
4. isosceles 5. right 6. acute 7. obtuse
8. equiangular 9. 55 10. 35 11. 45 12. 158
13. 90 14. 62 15.  $m\angle 1 = 60^\circ$
16.  $m\angle 1 = 60^\circ$ ;  $m\angle 2 = 30^\circ$ ;  $m\angle 3 = 80^\circ$
17.  $m\angle 1 = 70^\circ$ ;  $m\angle 2 = 65^\circ$ ;  $m\angle 3 = 95^\circ$
18.  $m\angle A = 45^\circ$ ;  $m\angle B = 90^\circ$ ;  $m\angle C = 45^\circ$
19. scalene; obtuse

### Practice Level B

1. sometimes 2. never 3. never 4. sometimes
5. scalene, obtuse 6. scalene, right
7. isosceles, acute

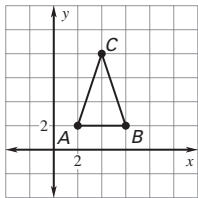


scalene; right triangle



scalene; not a right triangle

10. isosceles; not a right triangle



11. 30; right 12. 25; acute 13. 120; acute
14.  $131^\circ$  15.  $100^\circ$  16.  $125^\circ$  17.  $36^\circ$  18.  $122^\circ$
19.  $122^\circ$  20.  $38^\circ$  21.  $m\angle A = 60^\circ$ ,  $m\angle B = 30^\circ$ ,  $m\angle C = 90^\circ$
22.  $m\angle A = 60^\circ$ ,  $m\angle B = 30^\circ$ ,  $m\angle C = 90^\circ$
23. 60, 30 24. 45, 51 25. 24, 66
26. scalene; right

### Practice Level C

1. scalene; 20; acute 2. isosceles; 25; acute
3. equilateral; 60; equiangular 4.  $x = 10$ ;  $y = 71$
5.  $x = 50$ ;  $y = 33$  6.  $x = 15$ ;  $y = 42$
7.  $x = 85$ ;  $y = 58$  8.  $60^\circ$  9.  $120^\circ$  10.  $60^\circ$
11.  $120^\circ$  12.  $30^\circ$  13.  $30^\circ$  14.  $74^\circ$
15.  $m\angle B = 115^\circ$ ;  $m\angle C = 23^\circ$  16. 8 in. by 11 in. by 11 in.; 8 in. by 8 in. by 14 in.
17. 864 in. 18. 576 in. 19. 1344 in.

## Review for Mastery

1. right scalene 2. equiangular equilateral
3. obtuse isosceles 4.  $m\angle ABD = 90^\circ$ ,  $m\angle BDC = 60^\circ$
5.  $m\angle CAB = 80^\circ$ ,  $m\angle CBA = 10^\circ$

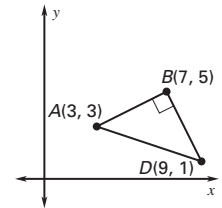
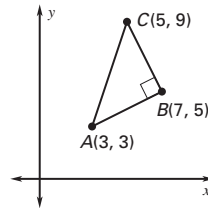
### Problem Solving Workshop: Worked Out Example

1. The legs are  $\overline{RS}$  and  $\overline{TS}$ , and the base is  $\overline{RT}$ ;  $m\angle 1 = 55^\circ$ ,  $m\angle 2 = 110^\circ$
2. The legs are  $\overline{RS}$  and  $\overline{TS}$ , and the hypotenuse is  $\overline{RT}$ ;  $m\angle SRT = 54^\circ$ ,  $m\angle 1 = 144^\circ$

### Challenge Practice

1. (5, 9)

2. (9, 1)



3.  $60^\circ$ ,  $60^\circ$ ,  $60^\circ$  4.  $63^\circ$ ,  $36^\circ$ ,  $81^\circ$ ; acute
5.  $x = 29$ ,  $y = 64$  6.  $x = 12.9$ ,  $y = 51.3$
7.  $m\angle A = m\angle 1$

8. GIVEN:  $\triangle ABC$

PROVE: Sum of exterior angles of  $\triangle ABC$  is  $360^\circ$ .

By the definition of a straight angle, you know that  $m\angle 1 + m\angle 2 = 180^\circ$ ,  $m\angle 3 + m\angle 4 = 180^\circ$ , and  $m\angle 5 + m\angle 6 = 180^\circ$ . So, it follows that the sum of all six angles is  $180^\circ + 180^\circ + 180^\circ = 540^\circ$ . By the Triangle Sum Theorem, you know that  $m\angle 2 + m\angle 4 + m\angle 6 = 180^\circ$ . The exterior angles of the triangle are  $\angle 1$ ,  $\angle 3$ , and  $\angle 5$ . To find the sum of these three angles, subtract  $180^\circ$  from the sum of all six angles,  $540^\circ$ , to obtain  $360^\circ$ .

## Lesson 4.2

### Practice Level A

1. Check student diagram;  $\overline{CP} \cong \overline{BI}$ ;  $\overline{PN} \cong \overline{IY}$ ;  $\overline{NC} \cong \overline{YB}$ ;  $\angle C \cong \angle B$ ;  $\angle P \cong \angle I$ ;  $\angle N \cong \angle Y$
2.  $\overline{OP}$  3.  $\angle F$  4.  $\angle G$  5.  $110^\circ$  6. 7 km
7.  $\triangle QPO$  8.  $\triangle EIG \cong \triangle QOM$ ; all corresponding sides and angles are congruent.
9. none 10.  $\triangle KLN \cong \triangle MNL$ ; all corresponding sides and angles are congruent.
11.  $\triangle DEG \cong \triangle HEF$ ; all corresponding sides and angles are congruent. 12. 25 13. 70 14. 11

