2.5 Exercises

Check It Out
Help with Homework
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Vocabulary and Concept Check

1. **VOCABULARY** How are corresponding angles of two similar figures related?
2. **VOCABULARY** How are corresponding side lengths of two similar figures related?
3. **CRITICAL THINKING** Are two figures that have the same size and shape similar? Explain.

Practice and Problem Solving

Tell whether the two figures are similar. Explain your reasoning.

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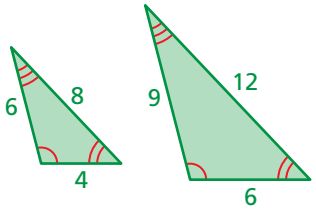

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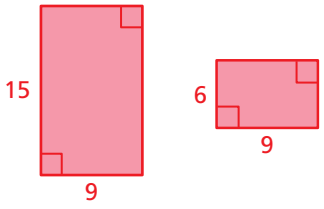


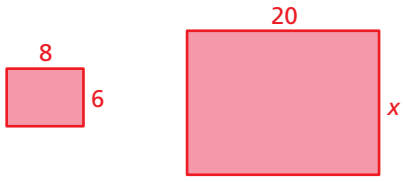
In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

6. Rectangle A: (0, 0), (4, 0), (4, 2), (0, 2)
   Rectangle B: (0, 0), (−6, 0), (−6, 3), (0, 3)
   Rectangle C: (0, 0), (4, 0), (4, 2), (0, 2)

7. Figure A: (−4, 2), (−2, 2), (−2, 0), (−4, 0)
   Figure B: (1, 4), (4, 4), (4, 1), (1, 1)
   Figure C: (2, −1), (5, −1), (5, −3), (2, −3)

The figures are similar. Find *x*.

2 8.



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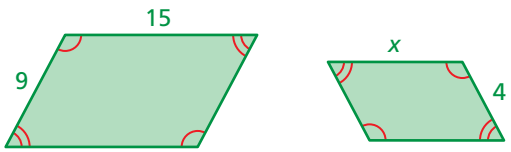

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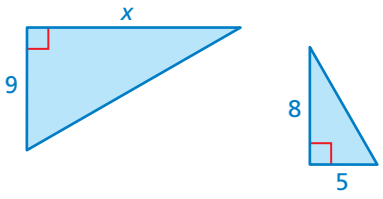

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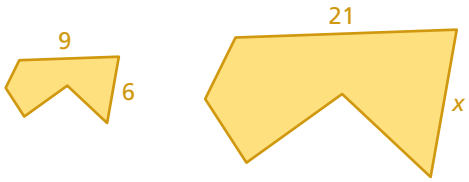
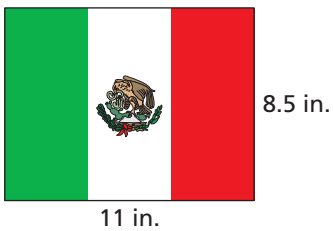


12. **MEXICO** A Mexican flag is 63 inches long and 36 inches wide. Is the drawing at the right similar to the Mexican flag?



13. **DESKS** A student's rectangular desk is 30 inches long and 18 inches wide. The teacher's desk is similar to the student's desk and has a length of 50 inches. What is the width of the teacher's desk?

14. **LOGIC** Are the following figures *always*, *sometimes*, or *never* similar? Explain.

a. two triangles

b. two squares

c. two rectangles

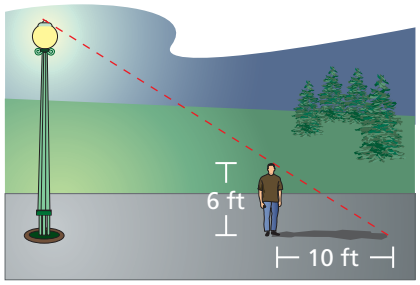
d. a square and a triangle

15. **CRITICAL THINKING** Can you draw two quadrilaterals each having two 130° angles and two 50° angles that are *not* similar? Justify your answer.

16. **SIGN** All the angle measures in the sign are 90°.

a. You increase each side length by 20%. Is the new sign similar to the original?

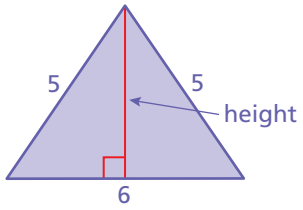
b. You increase each side length by 6 inches. Is the new sign similar to the original?



17. **STREETLIGHT** A person standing 20 feet from a streetlight casts a shadow as shown. How many times taller is the streetlight than the person? Assume the triangles are similar.

18. **REASONING** Is an object similar to a scale drawing of the object? Explain.

19. **GEOMETRY** Use a ruler to draw two different isosceles triangles similar to the one shown. Measure the heights of each triangle to the nearest centimeter.



a. Is the ratio of the corresponding heights proportional to the ratio of the corresponding side lengths?

b. Do you think this is true for all similar triangles? Explain.

20. Critical Thinking Given $\triangle ABC \sim \triangle DEF$ and $\triangle DEF \sim \triangle JKL$, is $\triangle ABC \sim \triangle JKL$? Give an example or a non-example.

Fair Game Review What you learned in previous grades & lessons

Simplify. *(Skills Review Handbook)*

21. $\left(\frac{4}{9}\right)^2$ **22.** $\left(\frac{3}{8}\right)^2$ **23.** $\left(\frac{7}{4}\right)^2$ **24.** $\left(\frac{6.5}{2}\right)^2$

25. **MULTIPLE CHOICE** You solve the equation $S = \ell w + 2wh$ for w. Which equation is correct? *(Section 1.4)*

(A) $w = \frac{S - \ell}{2h}$ (B) $w = \frac{S - 2h}{\ell}$ (C) $w = \frac{S}{\ell + 2h}$ (D) $w = S - \ell - 2h$