8-2 Exercises

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Homework Help

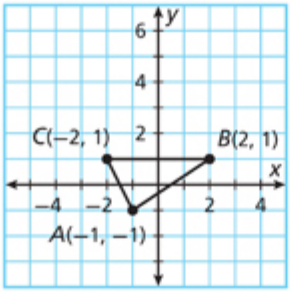
GUIDED PRACTICE

Vocabulary Apply the vocabulary from this lesson to answer each question.

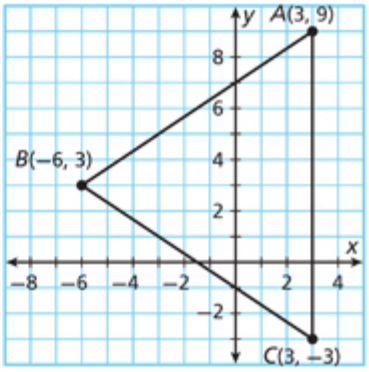
1. A(n) ____?____ transformation produces figures that are similar. (*similarity, congruence,* or *scale factor*)
2. If the scale factor k in a dilation is a value between 0 and 1, the dilation is a(n) ____?____ . (*enlargement, reduction,* or *translation*)

SEE EXAMPLE 1 **Apply the dilation D to the polygon with the given vertices. Name the coordinates of the image points. Identify and describe the transformation.**

3. $D: (x, y) \rightarrow (4x, 4y)$
   $A(-1, -1), B(2, 1), C(-2, 1)$



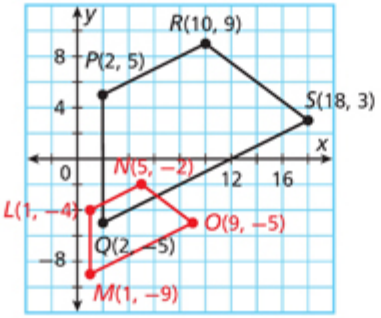
4. $D: (x, y) \rightarrow \left(\frac{1}{3}x, \frac{1}{3}y\right)$
   $A(3, 9), B(-6, 3), C(3, -3)$



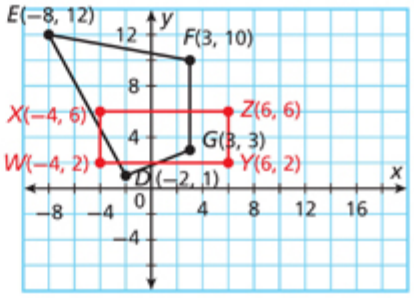
5. $D: (x, y) \rightarrow (2.5x, 2.5y)$
   $A(2, 3), B(5, -2), C(-4, -2)$
6. $D: (x, y) \rightarrow \left(\frac{3}{4}x, \frac{3}{4}y\right)$
   $A(4, 8), B(-8, 4), C(8, -4)$

SEE EXAMPLE 2 **Determine whether the polygons with the given vertices are similar. Support your answer by describing a transformation.**

7. $L(1, -4), M(1, -9), N(5, -2), O(9, -5)$
   $P(2, 5), Q(2, -5), R(10, 9), S(18, 3)$



8. $W(-4, 2), X(-4, 6), Y(6, 2), Z(6, 6)$
   $D(-2, 1), E(-8, 12), F(3, 10), G(3, 3)$



9. $A(3, 0), B(3, 6), C(9, 6)$
   $X(4, 0), Y(4, -8), Z(12, -8)$
10. $L(-10, 5), M(-5, 0), N(0, 0), O(5, 5)$
    $D(4, 2), E(2, 0), F(0, 0), G(-2, 2)$

SEE EXAMPLE 3

11. Prove that circle A with center $(4, 0)$ and radius 5 is similar to circle B with center $(-6, -3)$ and radius 3.

12. Prove that circle A with center $(6, -9)$ and radius 4 is similar to circle B with center $(3, -8)$ and radius 5.

SEE EXAMPLE 4

13. Hector is making an art project by cutting and gluing shapes to a wooden board. His design includes two similar triangles, with one 4 times the size of the other. He cuts and traces the small triangle first onto grid paper. Describe how he can use the tracing to make a pattern for the large fabric triangle.

PRACTICE AND PROBLEM SOLVING

Independent Practice

For Exercises	See Example
14–15	1
16–17	2
22	3
23	4

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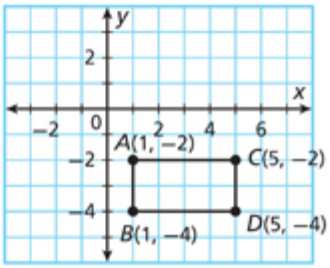
Online Extra Practice

Apply the dilation D to the polygon with the given vertices. Name the coordinates of the image points. Identify and describe the transformation.

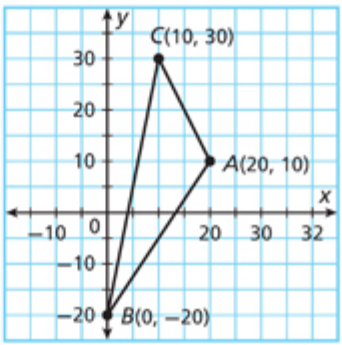
14. $D: (x, y) \rightarrow (0.5x, 0.5y)$

$A(1, -2)$, $B(1, -4)$, $C(5, -2)$ $D(5, -4)$



15. $D: (x, y) \rightarrow \left(\frac{3}{10}x, \frac{3}{10}y\right)$

$A(20, 10)$, $B(0, -20)$, $C(10, 30)$



HOT **Determine whether the polygons with the given vertices are similar. Support your answer by describing a transformation.**

16. $V(3, 2)$, $W(8, 2)$, $X(1, 5)$

$R(6, 4)$, $S(16, 4)$, $T(3, 15)$

17. $A(-2, -3)$, $B(-2, 0)$, $C(10, -3)$

$P(-4, 2)$, $Q(-4, 4)$, $R(4, 2)$

18. Write About It Triangle ABC is dilated by a scale factor of 5. The image is $A'B'C'$. Compare the angle measures and side lengths of the original triangle and its image after dilation.