

Assignment

LESSON 6: Every Which Way

Write

Draw and label a pair of congruent triangles. Write a congruence statement for the triangles, and then write congruence statements for each set of corresponding sides and angles.

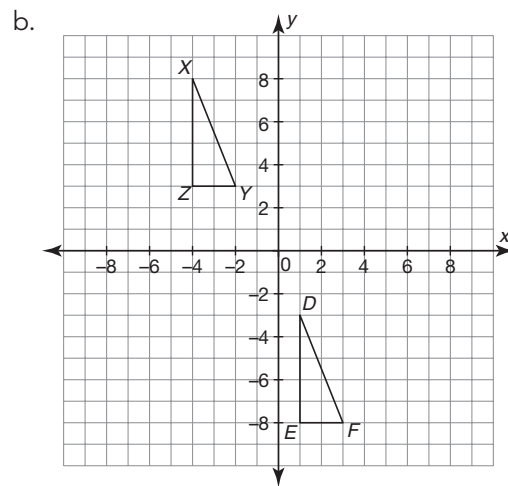
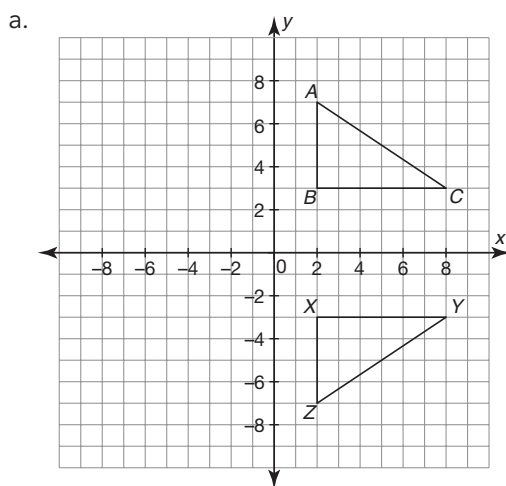
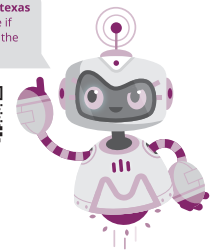
Remember

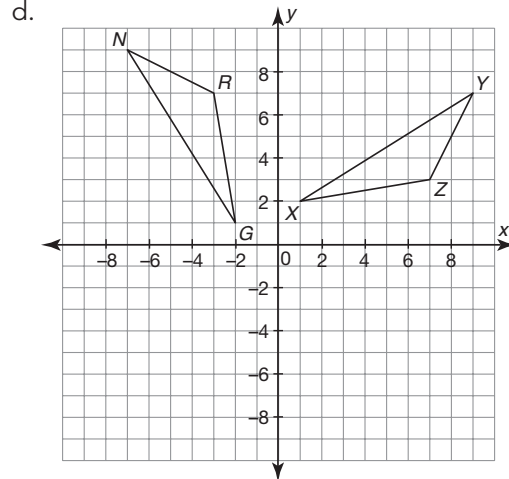
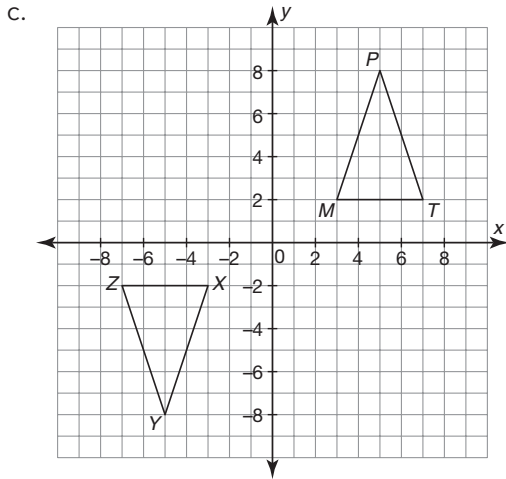
A single rigid motion or a sequence of rigid motions produces congruent figures. There is often more than one sequence of transformations that can be used to verify that two figures are congruent.

Practice

- Triangle ABC has coordinates $A(1, -8)$, $B(5, -4)$, and $C(8, -9)$.
 - Describe a transformation that can be performed on $\triangle ABC$ that will result in a triangle in the first quadrant.
 - Perform the transformation and name the new $\triangle DEF$.
 - List the coordinates for the vertices for $\triangle DEF$.
 - Write a triangle congruence statement for the triangles.
- Triangle ABC has coordinates $A(1, -8)$, $B(5, -4)$, and $C(8, -9)$.
 - Describe a transformation that can be performed on $\triangle ABC$ that will result in a triangle in the third quadrant.
 - Perform the transformation and name the new $\triangle DEF$.
 - List the coordinates for the vertices for $\triangle DEF$.
 - Write a triangle congruence statement for the triangles.
- Identify the transformation used to create $\triangle XYZ$ in each.

Visit livehint.com/texas or use this QR code if you need a hint on the Practice questions.



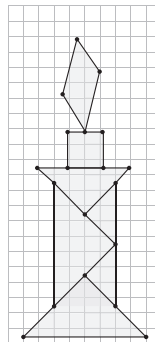
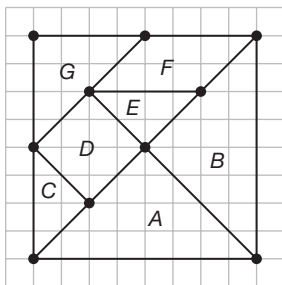


4. Use the coordinates to determine the transformation or sequence of transformations used to map the first triangle onto the second triangle.

- Triangle ABC with coordinates $A(-8, 1)$, $B(-4, 6)$, and $C(0, 3)$ maps onto $\triangle XYZ$ with coordinates $X(-1, -8)$, $Y(-6, -4)$, and $Z(-3, 0)$.
- Triangle PRG with coordinates $P(2, 8)$, $R(-7, 5)$, and $G(2, 5)$ maps onto $\triangle YOB$ with coordinates $Y(-2, 8)$, $O(7, 5)$, and $B(-2, 5)$.
- Triangle JCE with coordinates $J(-6, 0)$, $C(-4, -2)$, and $E(0, 2)$ maps onto $\triangle RAN$ with coordinates $R(6, -3)$, $A(4, -1)$, and $N(0, -5)$.
- Triangle EFG with coordinates $E(2, -1)$, $F(8, -2)$, and $G(8, -5)$ maps onto $\triangle ZOQ$ with coordinates $Z(-6, 1)$, $O(0, 2)$, and $Q(0, 5)$.

Stretch

The tangram is a popular Chinese puzzle that consists of seven geometric shapes. The shapes are composed into figures using all seven pieces. The seven pieces fit together to form a square. Determine the transformations of each shape required to create the candle pictured.



Review

- Triangle HOP has coordinates $H(2, 1)$, $O(-3, 4)$, and $P(5, 7)$. Determine the coordinates of the image of $\triangle HOP$ after each rotation.
 - Rotation 90° clockwise about the origin
 - Rotation 90° counterclockwise about the origin
 - Rotation 180° about the origin
- Combine like terms to rewrite each expression.
 - $(4\frac{1}{2}x - 3) + (-2 + 1\frac{3}{4}x)$
 - $4 - (2.3x - 7)$