

Geometry

2. Congruence and Rigid Motion

2.4 Determining Congruence

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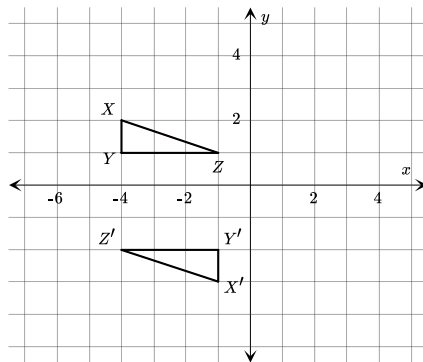
Exercises

Find all solutions to exercises via

https://mathleaks.com/study/determining_congruence or scan the QR code

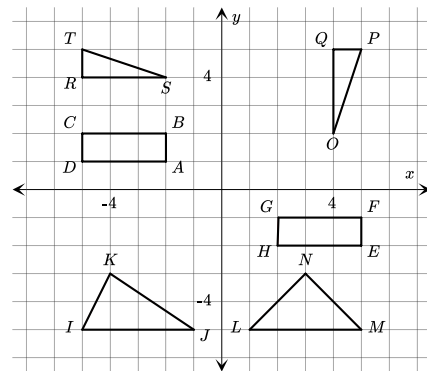


- 1.1** Describe a congruence transformation that maps XYZ to $X'Z'Y'$.



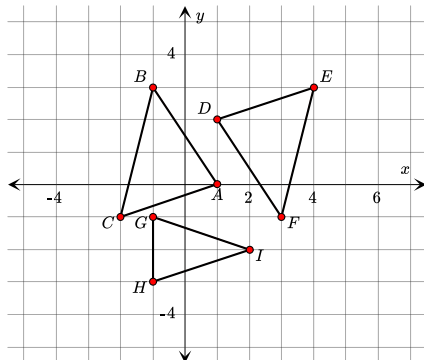
- 1.2** “If two figures can be mapped onto each other with rigid motions they are _____.”
Fill in the missing word.

- 1.3** Determine which of the figures that are congruent.



- 1.4** Is it true that if two triangles are congruent there is a rigid motion that maps one of them onto the other?

1.5 Identify a pair of congruent figures. Then determine a congruence transformation that maps the preimage to the congruent image.

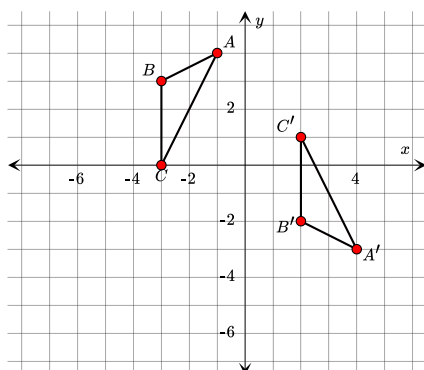


1.6 On Valentine's Day you will see a lot of hearts.

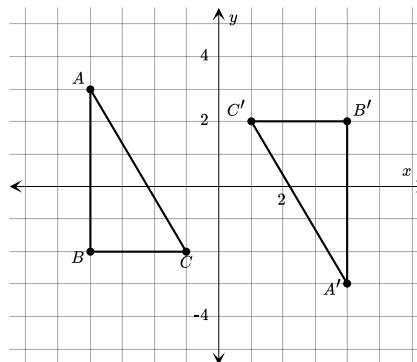


Imagine these two hearts, are they congruent?

1.7 Determine the congruence transformation(s) that maps $\triangle ABC$ to $\triangle A'B'C'$?

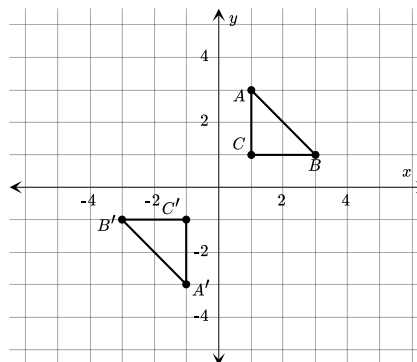


1.8 Name the congruence transformation that maps $\triangle ABC$ onto $\triangle A'B'C'$.

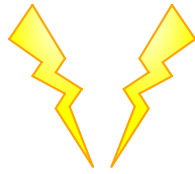


1.9 Name one congruence transformation that changes the size of the object.

1.10 Show that the triangles are congruent using congruence transformations.

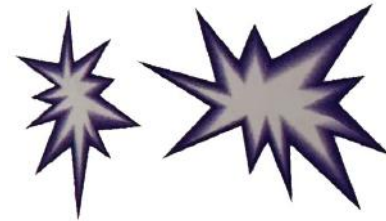


1.11 Two lightning strikes hit the ground and are captured on photo.

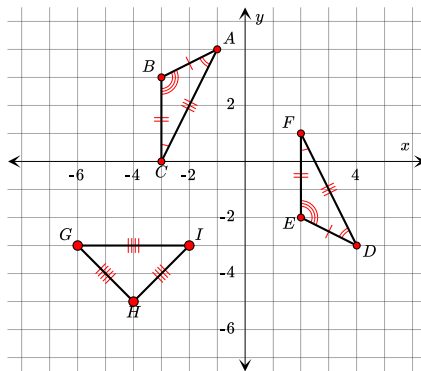


Are the lightning strikes congruent?

1.14 Cool guys don't look at explosions. However, if they did, they would be able to determine if these two explosions are congruent. Can you?

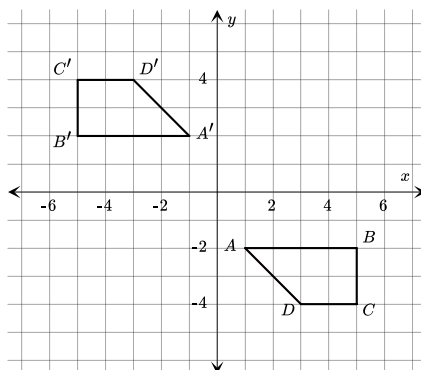


1.12 Determine the triangles that are congruent.

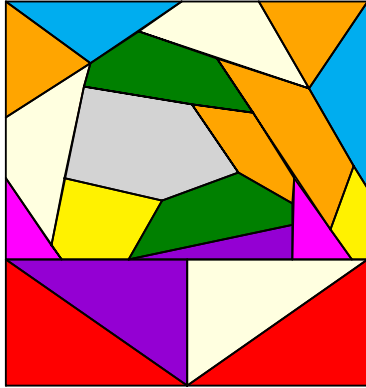


2.1 If a triangle is translated to a position it is always possible to rotate the triangle instead and produce the same image.

1.13 Find the congruence transformation that maps $ABCD$ onto $A'B'C'D'$.



- 2.2** What type of congruence transformation can be used to verify each statement about the figure?



- A** The pink triangles are congruent.
-
- B** The red triangles are congruent.
-
- C** The blue triangles are congruent.
-
- D** The green polygons are congruent.

- 2.3** A *tessellation* is an artwork where a geometric object is repeated over and over again. Find the congruence transformation the artist used to repeat the pattern in the pictures below.

A



B

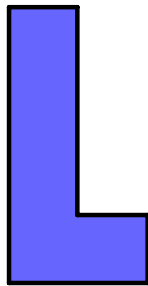


2.4



- A** In the figure above, determine the congruence transformation(s) used to draw the fishes.
-
- B** How can we be sure that the fishes are congruent?

- 3.1** Congruence can be defined through rigid motions or corresponding congruent part. Is one of the approaches better than the other? Explain your reasoning.
- 3.2** In the game Tetris you should match different objects with each other and avoid creating gaps.



Use transformations to create three images of the block so that the final figure has no gaps.