

For problems 1-5, match the word/phrase with the correct definition.

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|------------------------------|---|
| 1. _____ Dilation            | a. Always the first reason in a proof   |
| 2. _____ Rotational Symmetry | b. Changes the size of a figure by multiplying both the x- and y-values.                  |
| 3. _____ Given               | c. A quantity having direction as well as magnitude                                       |
| 4. _____ Vector              | d. Corresponding Parts of Congruent Figures are Congruent                                 |
| 5. _____ CPCFC               | e. When a figure rotates onto itself with a degree of rotation between 0 and 180 degrees. |

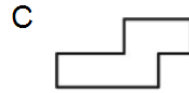
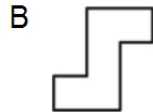
For problems 6-10, determine if the statement is true or false. If false, explain why.

6. If  $\triangle ABC$  and  $\triangle DEF$  are congruent, then  $\overline{CA} \cong \overline{EF}$ .
7. The translation rule  $(x, y) \rightarrow (x - 3, y + 4)$  can be written as  $\langle 3, -4 \rangle$ .
8. In a  $270^\circ$  rotation you can expect each point of your original figure to move 3 quadrants counterclockwise.
9. A rectangle has  $90^\circ$  rotational symmetry.
10. A dilation is a rigid transformation.
11. The vertices of  $\triangle ABC$  are  $A(4,3)$ ,  $B(-1, -3)$ , and  $C(2, -1)$ . What are the vertices of the image after undergoing a translation along the  $\langle -2, 5 \rangle$ ?
12. Draw an example of a shape that has 2 lines of symmetry.

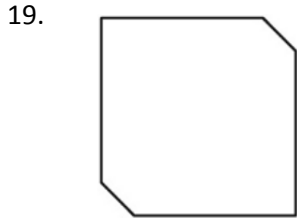
For problems 13-17, fill in the blank with the appropriate vocabulary word.

13. The original figure before any transformation is known as the \_\_\_\_\_.
14. An \_\_\_\_\_ is another term for rigid transformation.
15. An image of a reflection is \_\_\_\_\_ to the original image because the size of the shape hasn't changed.
16. A \_\_\_\_\_ is the change in the position, size, or shape of a figure.
17. Writing a translation rule using vectors is known as \_\_\_\_\_.

18. Circle all of the figures below that have rotational symmetry.



For problems 19 & 20, draw all of the lines of symmetry for the figure.



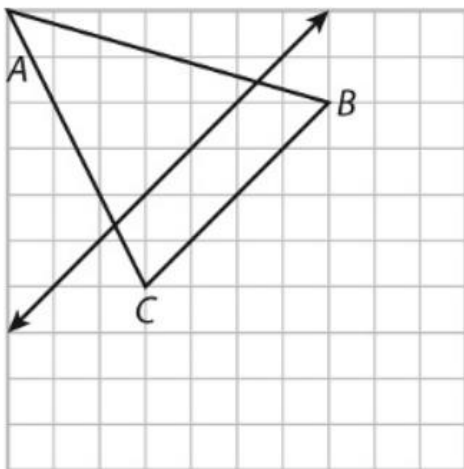
21. Describe in words the transformations that are occurring in the sequence given:  
 $(x, y) \rightarrow (x - 4, y + 2) \rightarrow (-x, -y) \rightarrow (2x, 2y)$

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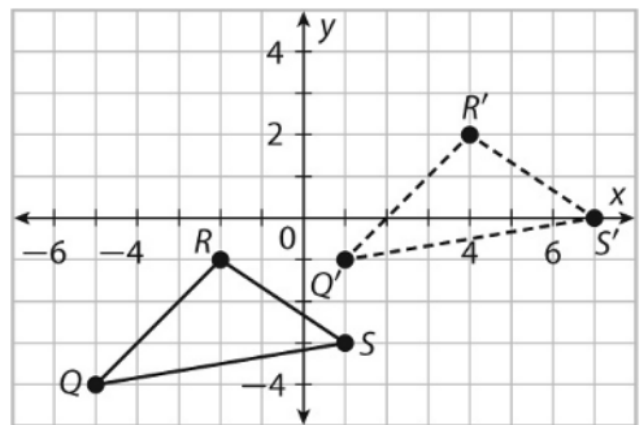


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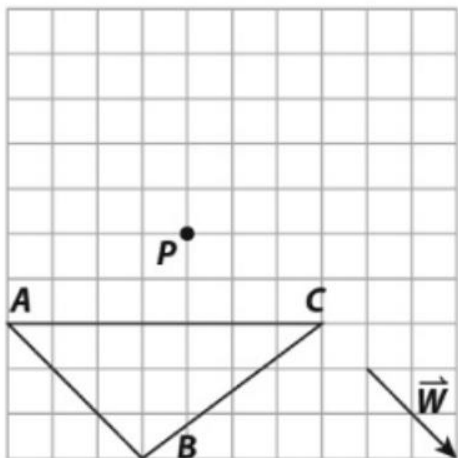
22. Reflect the figure over the line given.



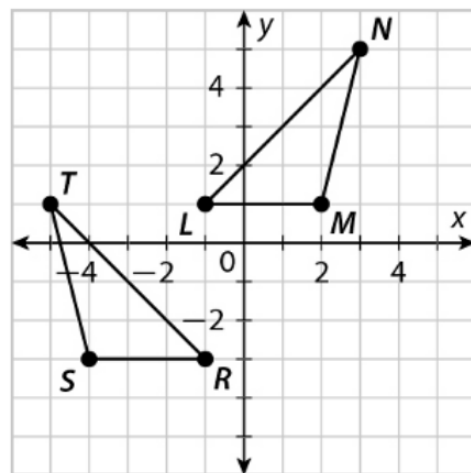
23. Write the rule for the given transformation.



24. Rotate  $\triangle ABC$  around point P  $180^\circ$  and then translate along  $\vec{w}$ .



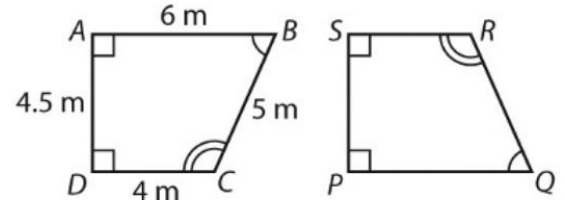
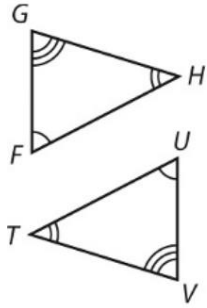
25. Are  $\triangle NLM$  and  $\triangle TSR$  congruent? Explain your reasoning using sequences of rigid transformations.



26. Using the congruence statement  $\triangle BCD \cong \triangle RST$ , determine whether each of the statements below are true or false.

- a)  $\overline{BC} \cong \overline{ST}$                       b)  $\overline{CB} \cong \overline{SR}$                       c)  $\angle C \cong \angle S$                       d)  $\triangle DBC \cong \triangle TSR$

27. The triangles below are congruent. List all congruent corresponding sides and all congruent corresponding angles.

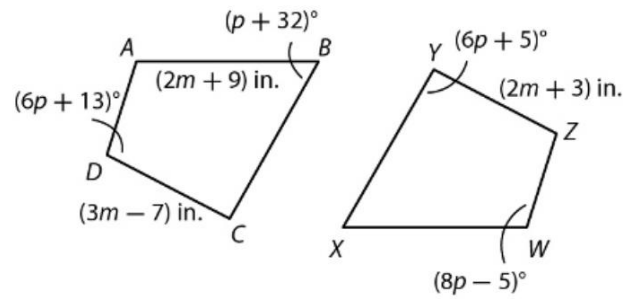


28. The trapezoids given at right are congruent.

- a) What is the length of  $\overline{SP}$ ?                      b) Which angle is congruent to  $\angle B$ ?                      c) Which side is longer,  $QR$  or  $RS$ ?

29. Use the figures at right.  $Quadrilateral ABCD \cong Quadrilateral WXYZ$

- a) What is the length of  $\overline{YZ}$ ?                      b) What is  $m\angle B$ ?



- c) What is  $m\angle X$ ?                      d) Explain how you found  $m\angle x$ .

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30. Write the proof.

Given:  $\triangle MQN \cong \triangle MQP$

Prove:  $\overline{MQ}$  bisects  $\angle NMP$

Statements	Reasons

