Name_____ Class_____ Date_____

Practice 9-1

Translations

State whether each transformation appears to be an isometry. Explain.

1.

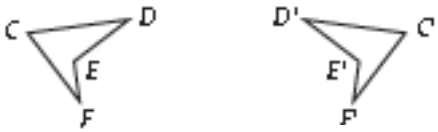
2.

3.

4. In the diagram, *C'D'E'F'* is the image of *CDEF*.

a. Name the images of ∠*C* and ∠*F*.

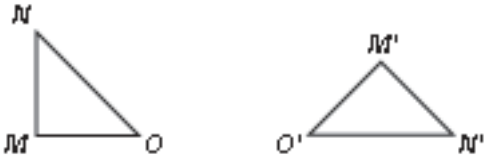
b. List the pairs of corresponding sides.



5. In the diagram, *M'N'O'* is the image of *MNO*.

a. Name the images of ∠*M* and ∠*N*.

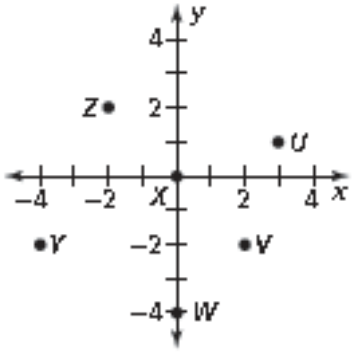
b. List the pairs of corresponding sides.



Find the rule that describes the given translation.

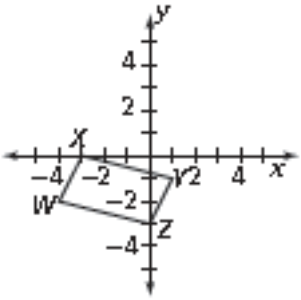
6. $Z \rightarrow Y$ **7.** $V \rightarrow W$ **8.** $U \rightarrow X$

9. $Y \rightarrow W$ **10.** $U \rightarrow Z$ **11.** $W \rightarrow V$

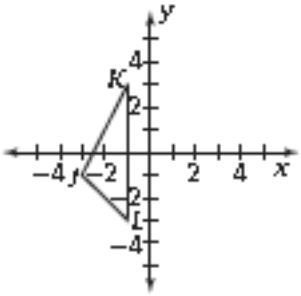


Find the image of each figure under the given translation.

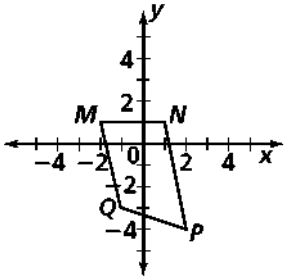
12. translation
$(x, y) \rightarrow (x + 2, y + 4)$



13. translation
$(x, y) \rightarrow (x - 2, y + 1)$



14. translation
$(x, y) \rightarrow (x + 5, y - 3)$



Find a single translation that has the same effect as each composition of translations.

15. $(x, y) \rightarrow (x + 3, y + 5.2)$ followed by $(x, y) \rightarrow (x + 1.2, y + 6)$

16. $(x, y) \rightarrow (x + 4, y - 8)$ followed by $(x, y) \rightarrow (x + 9, y - 5)$

17. $(x, y) \rightarrow (x + 7, y + 11)$ followed by $(x, y) \rightarrow (x - 7, y - 11)$

18. $(x, y) \rightarrow (x + 1, y + 2)$ followed by $(x, y) \rightarrow (x + 2, y + 1)$

19. $\triangle PNQ$ has vertices $P(2, 5)$, $N(-3, -1)$, and $Q(4, 0)$.

a. Determine the image of *P* under the translation $(x, y) \rightarrow (x - 5, y - 6)$.

b. Use matrices to find the image of $\triangle PNQ$ under the translation $(x, y) \rightarrow (x - 2, y + 3)$.

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