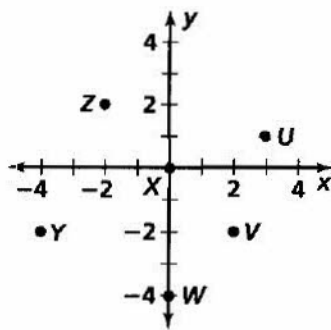


Practice 12-2

Translations

What is the image of Z under each translation?

- $\langle 2, -2 \rangle$
- $\langle 5, -1 \rangle$
- $\langle 2, -6 \rangle$
- $\langle 4, -4 \rangle$
- $\langle 0, 0 \rangle$
- $\langle -2, -4 \rangle$

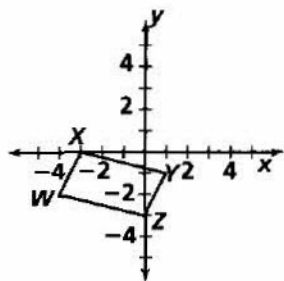


Find the vector that describes the given translation.

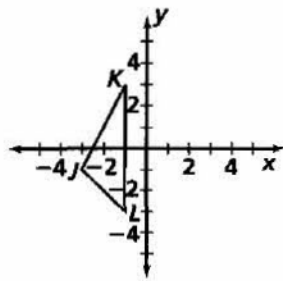
- $Z \rightarrow Y$
- $V \rightarrow W$
- $U \rightarrow X$
- $Y \rightarrow W$
- $U \rightarrow Z$
- $W \rightarrow V$

Use matrices to find the image of each figure under the given translation.

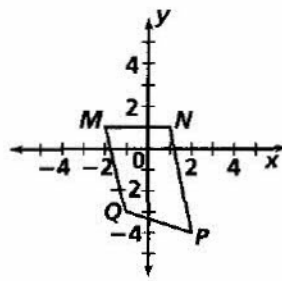
13. translation $\langle 2, 4 \rangle$



14. translation $\langle -2, 1 \rangle$

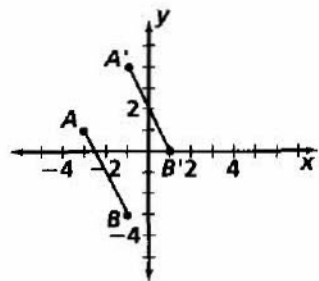


15. translation $\langle 5, -3 \rangle$

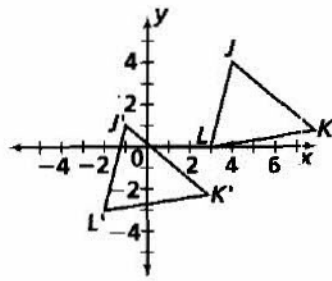


Write a rule to describe each translation.

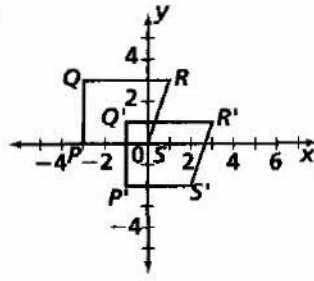
16.



17.



18.



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

- $\langle 3, 5 \rangle$ followed by $\langle 1, 2 \rangle$
- $\langle 4, -8 \rangle$ followed by $\langle 9, -5 \rangle$
- $\langle 7, 11 \rangle$ followed by $\langle -7, -11 \rangle$
- $\langle 1, 2 \rangle$ followed by $\langle 2, 1 \rangle$
- $\triangle PNQ$ has vertices $P(2, 5)$, $N(-3, -1)$, and $Q(4, 0)$.
 - Determine the image of P under the translation $\langle -5, -6 \rangle$.
 - Use matrices to find the image of $\triangle PNQ$ under the translation $\langle -2, 3 \rangle$.