Name _____ Date _____

LESSON 9.1

Practice

For use with pages 572–579

Use the translation $(x, y) \rightarrow (x + 6, y - 3)$.

1. What is the image of $A(3, 2)$?

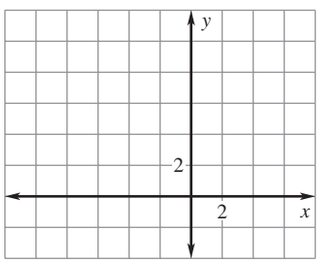
2. What is the image of $B(-4, 1)$?

3. What is the preimage of $C'(2, -7)$?

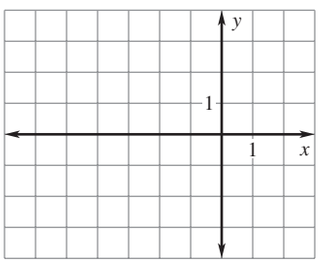
4. What is the preimage of $D'(-3, -2)$?

The vertices of $\triangle ABC$ are $A(-1, 1)$, $B(4, -1)$, and $C(2, 4)$. Graph the image of the triangle using prime notation.

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

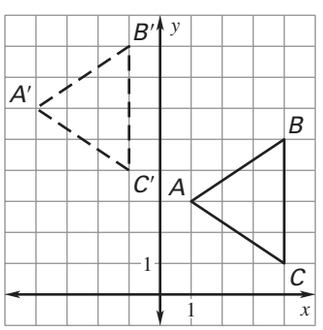


6. $(x, y) \rightarrow (x - 4, y - 2)$

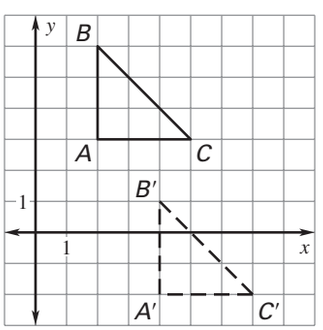


$\triangle A'B'C'$ is the image of $\triangle ABC$ after a translation. Write a rule for the translation. Then verify that the translation is an isometry.

7.



8.



Name _____ Date _____

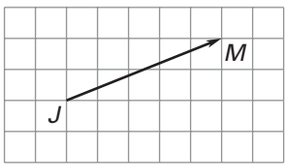
LESSON 9.1

Practice *continued*

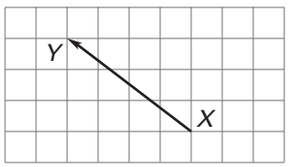
For use with pages 572–579

Name the vector and write its component form.

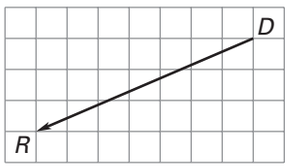
9.



10.



11.

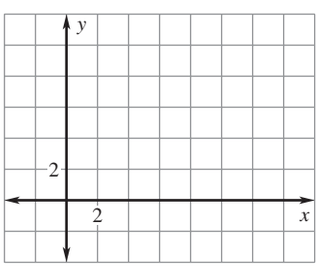


Use the point *P*(5, −2). Find the component form of the vector that describes the translation to *P′*.

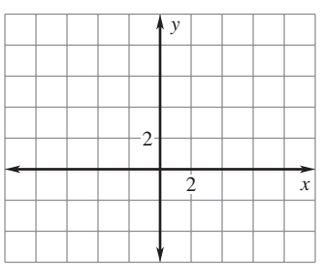
12. $P'(2, 0)$ **13.** $P'(8, -3)$ **14.** $P'(0, 4)$ **15.** $P'(-5, -4)$

The vertices of △*ABC* are *A*(1, 2), *B*(2, 6), and *C*(3, 1). Translate △*ABC* using the given vector. Graph △*ABC* and its image.

16. $\langle 8, 2 \rangle$



17. $\langle -7, -3 \rangle$



Name _____ Date _____

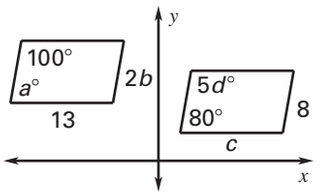
LESSON 9.1

Practice *continued*

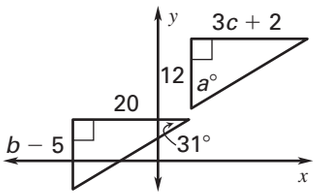
For use with pages 572–579

Find the value of each variable in the translation.

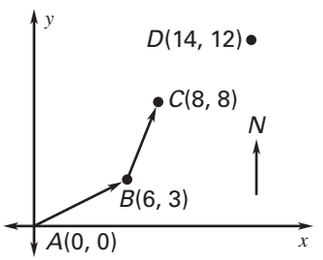
18.



19.



20. **Navigation** A hot air balloon is flying from point *A* to point *D*. After the balloon travels 6 miles east and 3 miles north, the wind direction changes at point *B*. The balloon travels to point *C* as shown in the diagram.



a. Write the component form for $\overrightarrow{AB}$ and $\overrightarrow{BC}$.

b. The wind direction changes and the balloon travels from point *C* to point *D*. Write the component form for $\overrightarrow{CD}$.

c. What is the total distance the balloon travels?

d. Suppose the balloon went straight from *A* to *D*. Write the component form of the vector that describes this path. What is this distance?