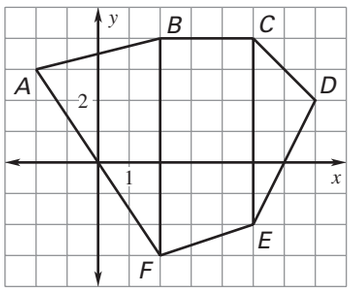
Name _____ Date _____

LESSON 9.2

Practice B

For use with pages 580–587

Use the diagram to write a matrix to represent the polygon.



1. $\triangle CDE$
2. $\triangle ABF$
3. Quadrilateral $BCEF$
4. Hexagon $ABCDEF$

Add or subtract.

5. $\begin{bmatrix} 6 & 3 \end{bmatrix} + \begin{bmatrix} 1 & 9 \end{bmatrix}$

6. $\begin{bmatrix} -8 & 4 \\ 4 & -5 \end{bmatrix} + \begin{bmatrix} 4 & 6 \\ 6 & -1 \end{bmatrix}$

7. $\begin{bmatrix} 5 & -2 \\ 2 & 4 \\ -7 & 2 \end{bmatrix} + \begin{bmatrix} 1 & 3 \\ 6 & -4 \\ 6 & -1 \end{bmatrix}$

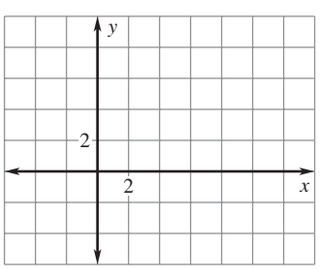
8. $\begin{bmatrix} -0.3 & 1.8 \end{bmatrix} - \begin{bmatrix} 0.6 & 2.7 \end{bmatrix}$

9. $\begin{bmatrix} -1 & -9 \\ 0 & 2 \end{bmatrix} - \begin{bmatrix} 5 & 9 \\ -6 & -7 \end{bmatrix}$

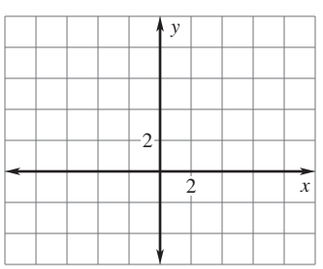
10. $\begin{bmatrix} 1.4 & 1.3 \\ -5 & -6.5 \\ 2 & 4 \end{bmatrix} - \begin{bmatrix} -1.4 & -3 \\ 3.9 & 4 \\ 1.3 & 3.9 \end{bmatrix}$

Find the image matrix that represents the translation of the polygon. Then graph the polygon and its image.

11. $\begin{matrix} A & B & C \end{matrix}$
$\begin{bmatrix} -1 & 5 & 3 \\ 2 & 2 & 6 \end{bmatrix}$; 5 units right and 3 units down



12. $\begin{matrix} M & N & O & P \end{matrix}$
$\begin{bmatrix} 3 & 7 & 5 & 1 \\ 1 & 2 & 6 & 5 \end{bmatrix}$; 6 units left and 2 units up



Multiply.

13. $\begin{bmatrix} 4 & -3 \end{bmatrix} \begin{bmatrix} -6 \\ 2 \end{bmatrix}$

14. $\begin{bmatrix} -0.8 & 4 \end{bmatrix} \begin{bmatrix} 3 \\ -1.6 \end{bmatrix}$

15. $\begin{bmatrix} -2 & 3 \\ 5 & -4 \end{bmatrix} \begin{bmatrix} -1 & 4 \\ 7 & 5 \end{bmatrix}$

16. $\begin{bmatrix} 0.9 & 5 \\ -4 & 2 \end{bmatrix} \begin{bmatrix} 3 & 0 \\ -4 & -3 \end{bmatrix}$

17. $\begin{bmatrix} -3 & 2 & 6 \end{bmatrix} \begin{bmatrix} -5 \\ 0 \\ -3 \end{bmatrix}$

18. $\begin{bmatrix} 2 & 5 & 5 \\ 1 & 0 & 3 \end{bmatrix} \begin{bmatrix} 0 \\ -4 \\ 2 \end{bmatrix}$

Name _____ Date _____

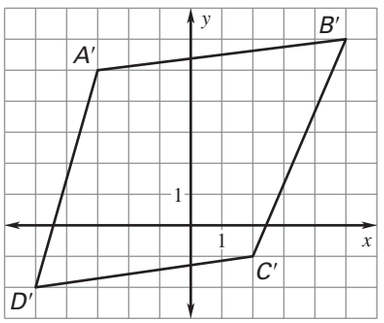
LESSON 9.2

Practice B *continued*

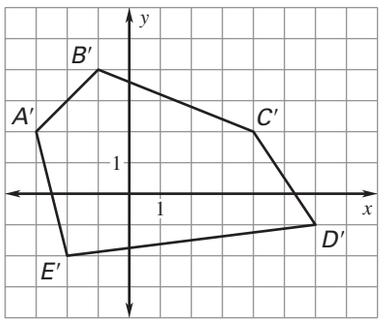
For use with pages 580–587

Use the described translation and the graph of the image to find the matrix that represents the preimage.

19. 3 units right and 4 units up



20. 2 units left and 3 units down



21. **Matrix Equation** Use the description of a translation of a triangle to find the value of each variable. What are the coordinates of the vertices of the image triangle?

$$\begin{bmatrix} -8 & x & -8 \\ 4 & 4 & y \end{bmatrix} + \begin{bmatrix} -2 & b & c \\ d & -5 & 2 \end{bmatrix} = \begin{bmatrix} r & -4 & -3 \\ 7 & s & 6 \end{bmatrix}$$

22. **Office Supplies** Two offices submit supply lists. A weekly planner costs \$8, a chairmat costs \$90, and a desk tray costs \$5. Use matrix multiplication to find the total cost of supplies for each office.

Office 1
15 weekly planners
5 chair mats
20 desk trays

Office 2
25 weekly planners
6 chair mats
30 desk trays

23. **School Play** The school play was performed on three evenings. The attendance on each evening is shown in the table. Adult tickets sold for \$5 and student tickets sold for \$3.50.

Night	Adults	Students
First	340	250
Second	425	360
Third	440	390

a. Use matrix addition to find the total number of people that attended each night of the school play.

b. Use matrix multiplication to find how much money was collected from all tickets each night.