

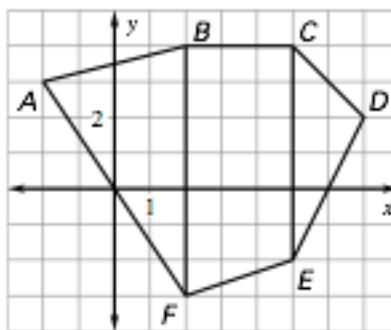
# Honors Geometry

## Worksheet 9.2

Name \_\_\_\_\_

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.  $[6 \ 3] + [1 \ 9]$

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

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

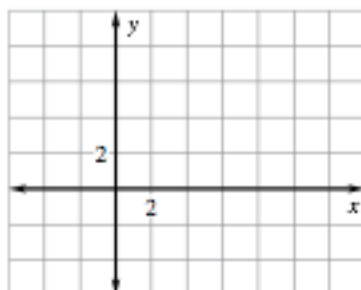
6.  $\begin{bmatrix} -8 & 4 \\ 4 & -5 \end{bmatrix} + \begin{bmatrix} 4 & 6 \\ 6 & -1 \end{bmatrix}$

8.  $[-0.3 \ 1.8] - [0.6 \ 2.7]$

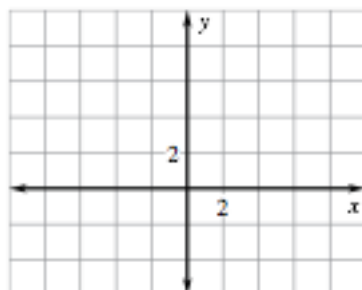
10.  $\begin{bmatrix} 1.4 & 1.3 \\ -5 & -6.5 \\ 2 & 4 \end{bmatrix} - \begin{bmatrix} -1.4 & -3 \\ 3.9 & 4 \\ 1.3 & 3.9 \end{bmatrix}$

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

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



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



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

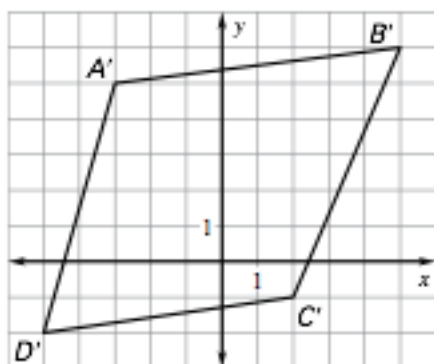
16.  $\begin{bmatrix} 0.9 & 5 \\ -4 & 2 \end{bmatrix} \begin{bmatrix} 3 & 0 \\ -4 & -3 \end{bmatrix}$

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

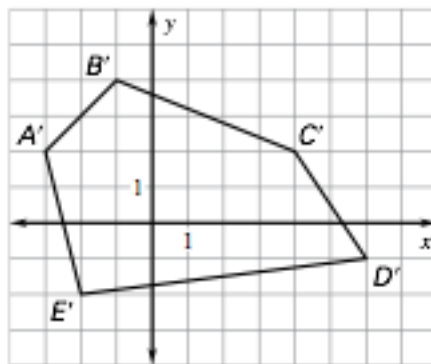
18.  $\begin{bmatrix} 2 & 5 & 5 \\ 1 & 0 & 3 \end{bmatrix} \begin{bmatrix} 0 \\ -4 \\ 2 \end{bmatrix}$

**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

- Use matrix addition to find the total number of people that attended each night of the school play.
- Use matrix multiplication to find how much money was collected from all tickets each night.