

Name _____

4-8B Lesson Master

Questions on SPUR Objectives

See Student Edition pages 293–297 for objectives.

PROPERTIES Objective F

Matching In 1–3, match the matrix with the rotation.

1. $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}$ _____ 2. $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$ _____ 3. $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix}$ _____

A R_{180}

B R_{270}

C R_{90}

4. Show how to find the matrix for R_{180} from the matrix for R_{90} .

PROPERTIES Objective G

5. Write as a matrix equation: The image of the point $(-1, -2)$ under a rotation of 90° is $(2, -1)$.

6. Write a sentence describing the matrix equation $\begin{bmatrix} -1 & 0 \\ 0 & -1 \end{bmatrix} \begin{bmatrix} 0 \\ 3 \end{bmatrix} = \begin{bmatrix} 0 \\ -3 \end{bmatrix}$ in terms of rotations.

7. The matrix for a rotation of 40° is approximately $\begin{bmatrix} 0.77 & -0.64 \\ 0.64 & 0.77 \end{bmatrix}$.

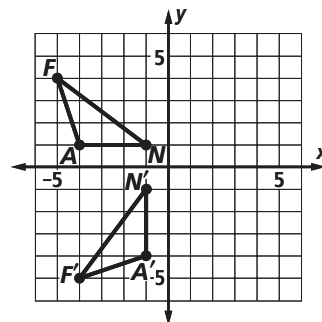
Use this matrix and the other rotations you know to generate

a matrix for a rotation of 220° . _____

REPRESENTATIONS Objective K

8. a. Refer to the graph at the right. What rotation maps $\triangle FAN$ onto $\triangle F'A'N'$?

- b. Give a matrix for the rotation in Part a.

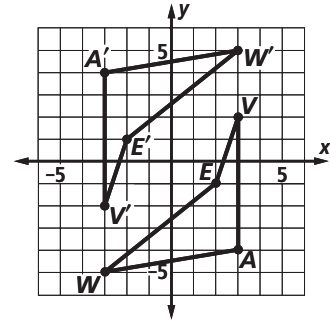


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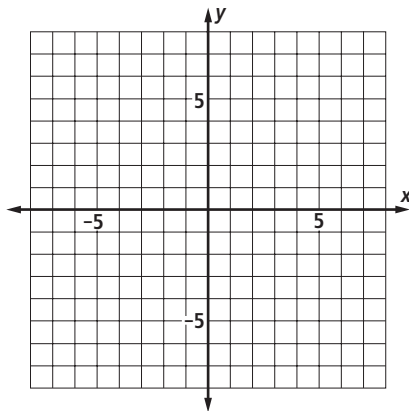
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9. a. Refer to the graph at the right. What rotation maps *WAVE* onto *W'A'V'E'*?

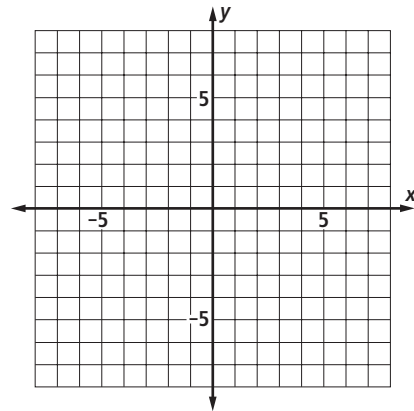


- b. Give a matrix for the rotation in Part a.

10. A polygon is represented by the matrix $\begin{bmatrix} 0 & -5 & -6 \\ 0 & 1 & -6 \end{bmatrix}$. Below graph the polygon and its image under R_{90} .



11. A polygon is represented by the matrix $\begin{bmatrix} -1 & -3 & 2 & 3 & 2 \\ -1 & 6 & 8 & 3 & 4 \end{bmatrix}$. Below graph the polygon and its image under R_{180} .



REVIEW Lesson 3-4, Objective B

In 12-17, write an equation for the line satisfying the given conditions.

12. slope -3 , through $(3, 5)$

13. slope 5 , through $(2, -4)$

14. through $(2, -3)$ and $(4, 1)$

15. through $(0, 3)$ and $(2, -1)$

16. parallel to $y = 3x$, through $(3, 4)$

17. perpendicular to $y = 4x - 9$, through $(0, 0)$
