Name _____

4-8A Lesson Master

Questions on SPUR Objectives
See Student Edition pages 293–297 for objectives.

PROPERTIES Objective F

1. **Fill in the Blanks** A rotation with a positive magnitude is in a _____ direction, while a rotation with a negative magnitude is in a _____ direction.

2. **Fill in the Blank** Write *always*, *sometimes but not always*, or *never* to complete the statement.

   Rotation images are _____ congruent to each other.

3. Explain why $R_{270} \circ R_{90} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$. _____

PROPERTIES Objective G

4. Write as a matrix equation: The image of the point (3, −7) under a rotation of 180° is (−3, 7). _____

5. Write a sentence describing the matrix equation $\begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}\begin{bmatrix} 1 \\ 7 \end{bmatrix} = \begin{bmatrix} 7 \\ -1 \end{bmatrix}$ in terms of rotations. _____

6. The matrix for a rotation of 20° is approximately $\begin{bmatrix} 0.94 & -0.34 \\ 0.34 & 0.94 \end{bmatrix}$. Use this matrix and the other rotations you know to generate a matrix for a rotation of

   a. 110°. _____ b. 200°. _____ c. 40°. _____

REPRESENTATIONS Objective K

In 7–10, use $TRI = \begin{bmatrix} 0 & 2 & 4 \\ 0 & 6 & 4 \end{bmatrix}$.

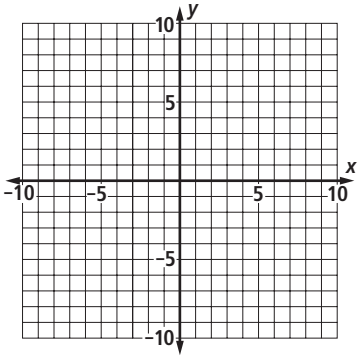
7. Graph *TRI* at the right.

8. Give a matrix for $T'R'I' = R_{90}(TRI)$.

   Graph this image at the right. _____

9. Give a matrix for $T''R''I'' = R_{90}(T'R'I')$.

   Graph this image at the right. _____



10. Use matrix multiplication to show that $T''R''I'' = R_{180}(TRI)$.

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