Practice worksheet | Matrices and transformations

Determinant and area scale

Name: _____ Date: _____

6 questions | 12 marks

1. Find the area factor of $\begin{pmatrix} 3 & 0 \\ 0 & 2 \end{pmatrix}$. [2 marks]

2. An area-5 region is mapped by $\begin{pmatrix} 1 & 2 \\ 3 & 4 \end{pmatrix}$. Find its image area and orientation change. [2 marks]

3. Triangle $(0,0), (2,0), (0,3)$ is dilated by factor 4. Find its image area. [2 marks]

4. If $\det A = -5$, state the determinant and area factor of A^{-1}. [2 marks]

5. Find the area effect of $\begin{pmatrix} 1 & 2 \\ 2 & 4 \end{pmatrix}$. [2 marks]

6. The diagonal matrix $\begin{pmatrix} k & 0 \\ 0 & 3 \end{pmatrix}$ sends an area-4 region to area 24. Find all real k. [2 marks]