Matrices – Invariant lines and transformations Name

1 Find the equation of the invariant line of the transformation with matrix $\begin{bmatrix} 3 & -1 \\ 8 & -3 \end{bmatrix}$

2

$$\boldsymbol{A} = \begin{bmatrix} \frac{\sqrt{3}}{2} & \frac{1}{2} \\ -\frac{1}{2} & \frac{\sqrt{3}}{2} \end{bmatrix} \quad \boldsymbol{B} = \begin{bmatrix} -\frac{\sqrt{3}}{2} & -\frac{1}{2} \\ \frac{1}{2} & -\frac{\sqrt{3}}{2} \end{bmatrix}$$

Find **BA** and describe the geometrical transformation it represents

3 The matrix **M** = $\begin{bmatrix} 3 & -1 \\ 3 & 2 \end{bmatrix}$ represents a transformation T in 2D

Show that T has no invariant lines through the origin.