

Find the determinant of the matrix

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

$$\det(M) = \boxed{\phantom{00000}}$$

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$$\det(M) = \boxed{-36}$$