

$$8I - M = \begin{bmatrix} -1 & -2 & -2 & -1 \\ 0 & 1 & -2 & -1 \\ 0 & 0 & -3 & -6 \\ 0 & 0 & 5 & 8 \end{bmatrix}$$

Expand through 1 column

$$\Rightarrow -1 \left(\det \begin{bmatrix} 1 & -2 & -1 \\ 0 & -3 & -6 \\ 0 & 5 & 8 \end{bmatrix} \right) + 0 - \dots$$

$$\Rightarrow -1 \left(1 \times \det \begin{pmatrix} -3 & -6 \\ 5 & 8 \end{pmatrix} \right) \Rightarrow -1 (-24 + 30) \Rightarrow \boxed{-6}$$

Now $\det((8I - M))^3 = (-6)^3 = \boxed{-216} \text{ Ans}$