[**1**] -96

[**2**]

$$A^{-1} = \frac{1}{18} \begin{pmatrix} -5 & 1 & 7 \\ 7 & -5 & 1 \\ 1 & 7 & -5 \end{pmatrix}$$

[**3**] a, b, c

[**4**] -2