42. $A = \begin{pmatrix} 1 & 2 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}, B = \begin{pmatrix} -5 & -6 \\ 3 & 4 \\ 5 & 6 \end{pmatrix}$ **43.** $A = \begin{pmatrix} 4 & 2 & 1 \\ -1 & 5 & -1 \\ 2 & 7 & -6 \end{pmatrix}, B = \begin{pmatrix} 3 & 7 & 0 \\ -1 & 5 & -1 \\ 2 & 7 & -6 \end{pmatrix}$

44. $A = \begin{pmatrix} 1 & 2 & 5 & 2 \\ 0 & -1 & 3 & 4 \\ 5 & 0 & -2 & 7 \end{pmatrix}, B = \begin{pmatrix} 1 & 0 & 11 & 10 \\ 0 & -1 & 3 & 4 \\ 5 & 0 & -2 & 7 \end{pmatrix}$

45. $A = \begin{pmatrix} a & b \\ g & d \end{pmatrix}, B = \begin{pmatrix} g & d \\ a & b \end{pmatrix}$ **46.** $A = \begin{pmatrix} \alpha & \beta \\ \gamma & \delta \\ \varepsilon & \zeta \\ \iota & \kappa \end{pmatrix}, B = \begin{pmatrix} \alpha & \beta \\ \gamma & \delta \\ -4\gamma + \varepsilon & -4\delta + \zeta \\ \iota & \kappa \end{pmatrix}$

De los problemas 47 a 63 encuentre la inversa de la matriz elemental dada.

47. $\begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$ **48.** $\begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}$ **49.** $\begin{pmatrix} 1 & 0 \\ -3 & 1 \end{pmatrix}$ **50.** $\begin{pmatrix} 4 & 0 \\ 0 & 1 \end{pmatrix}$

51. $\begin{pmatrix} 0 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 0 \end{pmatrix}$ **52.** $\begin{pmatrix} 1 & 0 & -5 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ **53.** $\begin{pmatrix} 1 & -2 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ **54.** $\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 3 \\ 0 & 0 & 1 \end{pmatrix}$

55. $\begin{pmatrix} 1 & 0 & 0 \\ -7 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ **56.** $\begin{pmatrix} 1 & 0 & -a \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$ **57.** $\begin{pmatrix} -\frac{2}{9} & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$

58. $\begin{pmatrix} 1 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$ **59.** $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & b & 0 & 1 \end{pmatrix}$ **60.** $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & -3 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$

61. $\begin{pmatrix} 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix}$ **62.** $\begin{pmatrix} 0 & 0 & 0 & 1 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 \end{pmatrix}$ **63.** $\begin{pmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ -6 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$

De los problemas 64 a 73 demuestre que cada matriz es invertible y escríbala como un producto de matrices elementales.

64. $\begin{pmatrix} 2 & 1 \\ 3 & 2 \end{pmatrix}$ **65.** $\begin{pmatrix} -3 & 1 \\ 1 & -2 \end{pmatrix}$ **66.** $\begin{pmatrix} 1 & 1 & 1 \\ 0 & 2 & 3 \\ 5 & 5 & 1 \end{pmatrix}$

67. $\begin{pmatrix} 1 & 0 & -a \\ 0 & 1 & 0 \\ -a & 0 & 0 \end{pmatrix}$ **68.** $\begin{pmatrix} 1 & 0 & 2 \\ 0 & 1 & 0 \\ \frac{1}{2} & 0 & 1 \end{pmatrix}$ **69.** $\begin{pmatrix} \frac{13}{4} & 3 & 0 \\ 1 & 1 & 0 \\ 2 & -3 & 1 \end{pmatrix}$