Instructions. Do each problem showing your work. Answers alone are not sufficient. Label each problem clearly, and write neatly, in a logical sequence.

Do the following problems from the text:
Page 602: 6, 10,16
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Additional problems:

1. Compute the inverse of the matrix $A = \begin{bmatrix} 1 & 0 & 1 \\ 1 & -1 & 0 \\ 3 & -1 & 2 \end{bmatrix}$, if possible.

2. Compute the inverse of the matrix $A = \begin{bmatrix} e^t \sin 2t & -e^{-t} \cos 2t \\ e^t \cos 2t & e^{-t} \sin 2t \end{bmatrix}$, if possible.

3. Compute the determinant of the following matrices:

$$(a)\ A = \begin{bmatrix} 1 & 0 & 0 & 0 \\ -3 & 4 & 0 & 0 \\ 0 & 5 & -1 & 0 \\ 11 & 0 & -2 & 2 \end{bmatrix} \qquad (b)\ \begin{bmatrix} 1 & 3 & 0 & -2 \\ 0 & 1 & -1 & 5 \\ -1 & -2 & 1 & 7 \\ 1 & 1 & 0 & -6 \end{bmatrix}$$

4. Solve the following system by Cramer's rule. Here λ is an unspecified number.

$$x + 2y = \lambda$$
$$3x + 2y = 1$$