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1. Chapter 3 review exercises (page 198) 3.4, 3.9, 3.20, 3.29, and 3.36

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2. Use elimination and the properties of the determinant to find the determinant of each matrix.

$$(a) A = \begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{bmatrix}$$

$$(b) A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 1 & 0 \\ 1 & 0 & 1 \end{bmatrix}$$

$$(c) A = \begin{bmatrix} a & b & 0 \\ c & d & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$(d) A = \begin{bmatrix} a & 0 & b \\ 0 & 5 & 0 \\ c & 0 & d \end{bmatrix}$$

$$(e) A = \begin{bmatrix} 2 & -1 & 0 & 0 \\ -1 & 2 & -1 & 0 \\ 0 & -1 & 2 & -1 \\ 0 & 0 & -1 & 2 \end{bmatrix}$$

3. Show that the value of the determinant of the following matrix is not affected by the value of the variable  $x$ . Then, write down your own example of a matrix with a variable entry  $x$  that also has this property.

$$\begin{bmatrix} 1 & 1 & x \\ 1 & 2 & 2 \\ 1 & 2 & 5 \end{bmatrix}$$

4. Problem set §4.2, exercises 4, 5, 12, 14, 21, and 24