Handwritten HW 15

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18. Find the determinant below, where $\begin{vmatrix} a & b & c \\ d & e & f \\ g & h & i \end{vmatrix} = 7$.

$$\begin{vmatrix} a & b & c \\ 5d & 5e & 5f \\ g & h & i \end{vmatrix}$$

Solution:

27. A and B are $n \times n$ matrices. Mark the statement true or false (T/F). Justify your answer.

A row replacement operation does not affect the determinant of a matrix.

Solution:

29. A and B are $n \times n$ matrices. Mark the statement true or false (T/F). Justify your answer.

If the columns of A are linearly dependent, then $\det A = 0$.

Solution:

32. A and B are $n \times n$ matrices. Mark the statement true or false (T/F). Justify your answer.

The determinant of A is the product of the pivots in any echelon form U of A multiplied by $(-1)^r$, where r is the number of row interchanges made during row reduction from A to U.

Solution:

33. A and B are $n \times n$ matrices. Mark the statement true or false (T/F). Justify your answer.

$\det(A + B) = \det A + \det B$.

Solution:

35. Compute $\det B^4$, where $B = \begin{bmatrix} 1 & 0 & 1 \\ 1 & 1 & 2 \\ 1 & 2 & 1 \end{bmatrix}$.

Solution: