Hint for Review Problem, Lecture 12, #1

Note: The first part of the problem asks you to put M into <u><u>row echelon form</u></u>, NOT <u><u>reduced row echelon form</u></u>. This means that operations need to be performed such that the diagonal entries are the only non-zero values, but the diagonal entries do NOT need to equal 1.

Example

row echelon form   vs   reduced row echelon form

$$\begin{pmatrix} a & 0 & 0 \\ 0 & b & 0 \\ 0 & 0 & c \end{pmatrix} \qquad \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix}$$

For the second part of the problem, consider how to compute the determinant of a diagonal matrix. Also, consider the effect of row addition on the determint. By combining these concepts with your result from the first part of the problem, you should be able to complete the proof.