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MAT 204

1) Singular and Non-singular matrices
Every matrix has its determinant associated with a number.
If the determinant of a matrix is equal to zero. i.e. $|A| = 0$, then it is a singular matrix.
If the determinant of a matrix is not equal to zero. i.e. $|A| \neq 0$, then it is a non-singular matrix.

2) Examples
(i) $A = \begin{pmatrix} 6 & 2 \\ 5 & 3 \end{pmatrix}$

$|A| = (6 \times 3) - (5 \times 2)$
$= 18 - 10 = 8 \neq 0$
So it is a non-singular matrix

(ii) $A = \begin{pmatrix} 3 & 6 \\ 1 & 2 \end{pmatrix}$

$|A| = (3 \times 2) - (6 \times 1) = 0$
So it is a singular matrix.