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1. The **matrices** are said to be **singular** if their determinant is equal to zero. For **example**, if we have **matrix** A whose all elements in the first column are zero. ... Similarly, **non-singular matrix** is a **matrix** which has non-zero value of its determinant. **Non-singular matrices** are **invertible** (their inverse exist).
2. (i) C=

1 4 8

-3 0 5

6 2 1

[C]= 1(0-10)-4(-3-30)+8(-6-0)

[C]=-10+132-48=74

[Cx]Not equal to 0, therefore A is a non-singular matrix

(ii) [x]=

1 2 8

4 7 6

9 5 3

[x]= 1(21-30)-2(12-54)+8(20-63)

[x]=-9+84-344=-269

[x]Not equal to 0, therefore X is a non-singular matrix

(iii) [Y]=

0 5 0

-3 -7 -1

2 1 9

[Y]= 0(171+1)-5(-27+2)+0(-3+14)

[Y]=0+125-0=125

[Y]Not equal to 0, therefore Y is a non-singular matrix

3 1 2

2 0 5

5 1 7

(iv) D=

|D|=3(0-5)-1(14-25)+2(2-0)

|D|=-15+11+4=0

Hence, we need to consider a sub matrix of D

3 1

2 0

Dsub =

|Dsub|=0-2=-2

Therefore, D is a singular matrix

(v) [U] =

1 7 8

1 0 5

11 6 12

[U]= 1(0+30)-7(12-55)+8(6-0)

[U]=30+301+48=319

[U]Not equal to 0, therefore U is a non-singular