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ASSIGNMENT .

**SOLUTION A**

1) X = 1 2 8

 4 7 6

 9 5 3

2) Y = 0 5 0

 -3 -7 -1

 2 1 9

i) X = 1 7 6 -2 4 6 +8 4 7

 5 3 9 3 9 5

X = 1(21 – 30) -2 (12 – 54) +8( 20 - 63)

 = 1( -9) -2( -42) +8(-43)

 = -9+84-344

 = -269

X ≠ 0

Hence, X is non-singular

ii) Y =

0 -7 -1 -5 -3 -1 +0 -3 -7

 1 9 2 9 2 1

= 0 – 5( -27 + 2) +0

= -5( -25) = 125

Hence, Y is non-singular

iii) Rank of Y

Since the determinant of Y ≠ 0

Hence, the rank of Y is 3.

iv) | X + Y|

 1 2 8 0 5 0 0 7 8

 4 7 6 + -3 -7 -1 = 1 0 5

 9 5 3 2 1 9 11 6 12

0 0 5 -7 1 5 +8 1 0

 6 12 11 12 11 6

= 0 – 7(12 – 55) + (6 - 0)

= 0 – 7 ( -43) + 8(6)

301 +48 = 349

Hence, It is non-singular .

v) 5Y

5 0 5 0 0 25 0

 -3 -7 -1 = -15 -35 -5

 2 1 9 10 5 45

0 -35 -5 - 25 -15 -5 + 0 -15 -35

 5 45 10 45 10 5

= 0 – 25(-675 +50 ) +0

= -25(-625) = 15,625

Hence, 5Y is non-singular

**SOLUTION B**

 Domain Co-domain

 Q R

 Q T R