MUHAMMAD UMAR KHAN 10619
NC LAB#08

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## LAB TASK 08

## CODE

```
A = mat([[83,11,-4,95],[7,52,13,104],[3,8,29,71]])

B = mat(([8,-3,2,45],[4,11,-1,71],[6,3,12,35]))

C = mat(([3,2,1,10],[2,3,2,14],[1,2,3,14]))


# For A

A[1,:] = A[1,:]-A[0,:]*A[1,0]/A[0,0]

A[2,:] = A[2,:]-A[0,:]*A[2,0]/A[0,0]

A[2,:] = A[2,:]-A[1,:]*A[2,1]/A[1,1]


z = A[2,3]/A[2,2] y = (A[1,3]-

(A[1,2]*z)) / A[1,1] x = (A[0,3]-

A[0,1]*y - A[0,2]*z)/A[0,0]

 print('Function A',' ',' X ',' Y ',' Z ')

print(A,' ',x,' ',y,' ',z)


# For B

B[1,:] = B[1,:]-B[0,:]*B[1,0]/B[0,0]

B[2,:] = B[2,:]-B[0,:]*B[2,0]/B[0,0]

B[2,:] = B[2,:]-B[1,:]*B[2,1]/B[1,1]


xx=B[2,3]/B[2,2] yy=(B[1,3]-

B[1,2]*xx)/B[1,1] zz=(B[0,3]-

B[0,1]*yy-B[0,2]*xx)/B[0,0]
```

print('\nFunction B',' ',' X ',' Y ',' Z ')

print(B,' ',xx,' ',yy,' ',zz)

# For C

C[1,:] = C[1,:]-C[0,:]*C[1,0]/C[0,0]

C[2,:] = C[2,:]-C[0,:]*C[2,0]/C[0,0]

C[2,:] = C[2,:]-C[1,:]*C[2,1]/C[1,1]

xxx=C[2,3]/C[2,2] yyy=(C[1,3]-C[1,2]*xxx)/C[1,1]

zzz=(C[0,3]-C[0,1]*yyy-C[0,2]*xxx)/C[0,0]

print('\nFunction C',' ',' X ',' Y ',' Z ')

print(C,' ',xxx,' ',yyy,' ',zzz)

```
A = mat([[83,11,-4,95],[7,52,13,104],[3,8,29,71]])
B = mat(([8,-3,2,45],[4,11,-1,71],[6,3,12,35]))
C = mat(([3,2,1,10],[2,3,2,14],[1,2,3,14]))

# For A
A[1,:] = A[1,:]-A[0,:]*A[1,0]/A[0,0]
A[2,:] = A[2,:]-A[0,:]*A[2,0]/A[0,0]
A[2,:] = A[2,:]-A[1,:]*A[2,1]/A[1,1]

z = A[2,3]/A[2,2]
y = (A[1,3]-(A[1,2]*z)) / A[1,1]
x = (A[0,3]-A[0,1]*y - A[0,2]*z)/A[0,0]

print('Function A',' ',' X ',' Y ',' Z ')
print(A,' ',x,' ',y,' ',z)

# For B
B[1,:] = B[1,:]-B[0,:]*B[1,0]/B[0,0]
B[2,:] = B[2,:]-B[0,:]*B[2,0]/B[0,0]
B[2,:] = B[2,:]-B[1,:]*B[2,1]/B[1,1]

xx=B[2,3]/B[2,2]
yy=(B[1,3]-B[1,2]*xx)/B[1,1]
zz=(B[0,3]-B[0,1]*yy-B[0,2]*xx)/B[0,0]

print('\nFunction B',' ',' X ',' Y ',' Z ')
print(B,' ',xx,' ',yy,' ',zz)

# For C
C[1,:] = C[1,:]-C[0,:]*C[1,0]/C[0,0]
C[2,:] = C[2,:]-C[0,:]*C[2,0]/C[0,0]
C[2,:] = C[2,:]-C[1,:]*C[2,1]/C[1,1]

xxx=C[2,3]/C[2,2]
yyy=(C[1,3]-C[1,2]*xxx)/C[1,1]
zzz=(C[0,3]-C[0,1]*yyy-C[0,2]*xxx)/C[0,0]

print('\nFunction C',' ',' X ',' Y ',' Z ')
print(C,' ',xxx,' ',yyy,' ',zzz)

```

# OUTPUT:

```
Function A                          X                    Y                    Z
[[83 11 -4 95]
 [ 0 51 13 95]
 [ 0  0 27 53]]          1.0586222887191468    1.3623819898329703    1.962962962962963

Function B                          X                    Y                    Z
[[  8  -3   2  45]
 [  0  12  -2  48]
 [  0   0  10 -19]]             -1.9              3.6833333333333336      7.481249999999999

Function C                          X                    Y                    Z
[[ 3  2  1 10]
 [ 0  1  1  7]
 [ 0  0  1  3]]                  3.0                  4.0            -0.3333333333333333
```