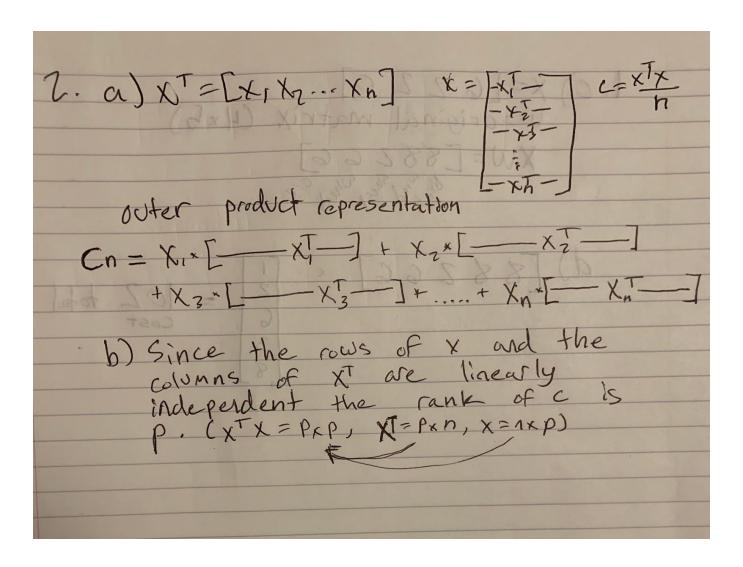


```
PSet1_LA.py
  import numpy as np
  #a)
  x = [[1,1,0,0,0],[1,1,1,1,0],[0,0,0,2,3],[0,0,1,1,1]]
  #b)
  y = [1,2,6,3,8]
  #c)
  z = [[6,2,2,0]]
  mx = np.matrix(x)
  my = np.matrix(y)
  mz = np.matrix(z)
  #b)
  xy = mx @ my_T
  #c)
  xz = mz @ mx
  #d)
  final = xz @ my.T
  print(xy)
  print(xz)
  print(final)
[lewiss-mbp:desktop lewisarnsten$ python3 PSet1_LA.py
[[ 3]
 [12]
 [30]
 [17]]
[[8 8 2 6 6]]
```

[[102]]



C) $X = \begin{bmatrix} 2 & 2 & 3 \\ 4 & 11 \\ 10 & 6 & 13 \end{bmatrix}$ $A \begin{bmatrix} 2 \\ 4 \end{bmatrix} + b \begin{bmatrix} 2 \\ 4 \end{bmatrix} + C \begin{bmatrix} 3 \\ 13 \end{bmatrix} = 0$ C = b = C = 0, a = 2 b = 1 c = -2 So the columns are linearly independent $A) <math>X = \begin{bmatrix} -1 & 2 \\ 1 & -2 \end{bmatrix}$ $A \begin{bmatrix} -1 \\ 1 \end{bmatrix} + b \begin{bmatrix} 2 \\ -2 \end{bmatrix} = 0$ A = b = C = 0, So the columns are linearly independent. The rank is 2, as it is foll rank.