

Q1. For each of the following matrices, working modulo 26, encrypt the message, 'GREEN EGGS AND HAM':

(i). $\begin{pmatrix} 3 & 10 \\ 9 & 7 \end{pmatrix}$

(ii). $\begin{pmatrix} 8 & 9 \\ 3 & 11 \end{pmatrix}$

Q2. For each of the following matrices find it's inverse modulo 26 and hence decrypt the associated message:

(i). $\begin{pmatrix} 13 & 4 \\ 9 & 1 \end{pmatrix}$, (RDSRQOVUQBCZANQWRDDSAKOB)

(ii). $\begin{pmatrix} 3 & 10 \\ 9 & 7 \end{pmatrix}$, (RLOQNZOFXMCQKGQIVDAZ)

(iii). $\begin{pmatrix} 3 & 5 \\ 6 & 3 \end{pmatrix}$, (XAYQNNJXBLYA)

Answers:

Q1.

- (i). GRAMB PASC GRIV LGJ
- (ii). TXQEKF YGOCBUEVRD

Q2.

- (i). TO SLEEP PERCHANCE TO DREAMX
- (ii). BEWARE OF THE MESSENGER
- (iii). TOO MANY DAVES