

## Quiz 31

1. Define an  $(n, k)$  linear code.

2.  $G$  is a systematic code with generator matrix over  $\mathbb{Z}_2$ :

$$G = \begin{bmatrix} 1 & 0 & 0 & 1 & 1 & 0 \\ 0 & 1 & 0 & 1 & 0 & 1 \\ 0 & 0 & 1 & 1 & 1 & 1 \end{bmatrix}$$

What are  $n, k$  for the  $(n, k)$  linear code that  $G$  generates?

3. What is the parity-check matrix  $H$  corresponding to  $G$  in 2?

4. What is the "Orthogonality Relation" characterization of codewords  $v$  in an  $(n, k)$  linear code with generator matrix  $G$  and parity-check matrix  $H$ ?