

## hw-D

Suppose 20% of all bits transmitted through a digital communication channel are erroneously received and that whether any particular bit is erroneously received is independent of whether any other bit is erroneously received. Consider sending a very large number of messages, each consisting of 25 bits.

a) What proportion of these messages will have at most 2 erroneously received bits? Table II

$$\text{binomial}(n=25, \pi=0.2, X \leq 2) = .004 + .023 + .071 \\ = \underline{0.098}$$

b) What prop. of these messages will have at least 4 erroneously received bits?

$$\text{binomial}(n=25, \pi=0.2, X \geq 4) \\ = 1 - \text{binomial}(n=25, \pi=0.2, X \leq 3) \\ = 1 - (.004 + .023 + .071 + .136) \\ = \underline{0.766}$$