Midterm 2 Review

- Shannon-Fano-Elias code and Arithmetic code (know concept, no calculation in exam)
- Maximum entropy (know concept and derivation)
- Joint typicality: proof and main results. How to extent this to similar cases.
- Channel capacity: $C = \max_{p(x)} I(X;Y)$
  Can expand $I(X;Y) = H(X) - H(X|Y)$ or $I(X;Y) = H(Y) - H(Y|X)$
- Binary symmetric channel: $C = 1 - H(p)$ bits
- Binary erasure channel: $C = 1 - \alpha$ bits
- Proof of channel coding theorem: achievability and converse
- Hamming codes and Viterbi algorithm (know concepts)
- Feedback channel, source-channel separation theorem (know concept)