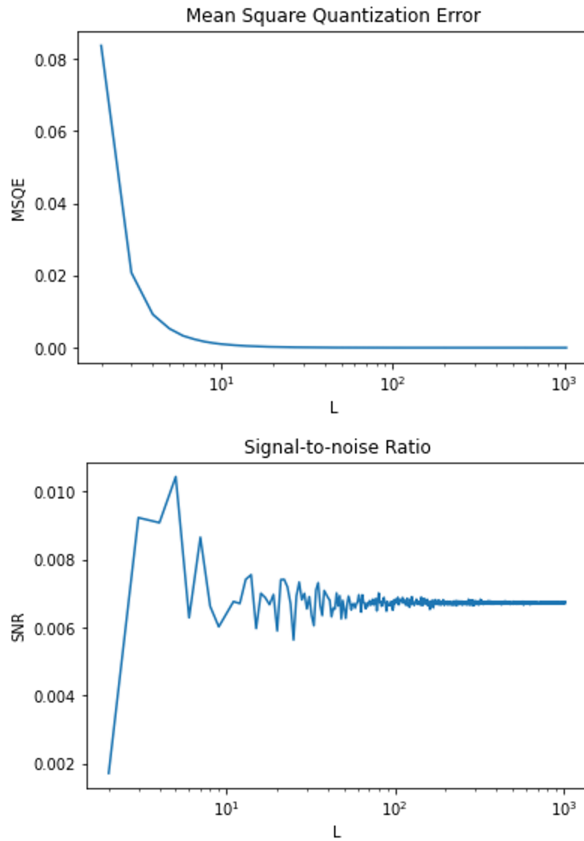


PS5

2. power = 0.083



$$3. a) P_X(x) = \begin{cases} .36, & x=0 \\ .30, & x=1 \\ .34, & x=2 \end{cases}$$

$$P_Y(y) = \begin{cases} .36, & y=0 \\ .32, & y=1 \\ .32, & y=2 \end{cases}$$

$$b) p_{X|Y=1}(x) = \begin{cases} \frac{.04}{.32}, & x=0 \\ \frac{.20}{.32}, & x=1 \\ \frac{.08}{.32}, & x=2 \end{cases}$$

$$c) E[X] = E[Y] = \frac{1}{3}$$

$$4) E[X] = E[Y] = \frac{1}{3}$$

$$\begin{aligned} \text{cov}(X, Y) &= E[XY] - E[X]E[Y] \\ &= \frac{1}{9} - \left(\frac{1}{3}\right)\left(\frac{1}{3}\right) \\ &= 0 \end{aligned}$$

$$\begin{aligned} 5) E(Y_1) &= E(X_1 - 2X_2 + 1) & \mu &= 0 \\ & & \sigma^2 &= 1 \\ &= E(X_1) - 2E(X_2) + 1 \\ &= 0 - 0 + 1 = 1 \end{aligned}$$

$$E(Y_2) = E(2X_1 + X_2 - 1)$$