

Question 3

$$N = 6$$

Signal to Interference ratio $\frac{S}{I} = 15 \text{ dB}$

if $K = 4$ then

$$\begin{aligned} q_1 &= \left(N \times \frac{S}{I} \right)^{1/K} \\ &= (6 \times 15)^{1/4} \\ &= (90)^{1/4} \\ &\approx 3.08 \end{aligned}$$

For $K = 3$

$$\begin{aligned} q_2 &= \left(N \times \frac{S}{I} \right)^{1/K} \\ &= (6 \times 15)^{1/3} \\ &\approx 4.48 \end{aligned}$$

now

we know for

$$q = \sqrt{3N}$$

so,

$$N_1 = \frac{q_1^2}{3}$$

$$= \frac{(3.08)^2}{3}$$

$$= 3.16$$

$$\approx 4$$

$$N_2 = \frac{q_2^2}{3}$$

$$= \frac{(4.48)^2}{3}$$

$$= 6.69$$

$$\approx 7$$