MSE for LSB-k

- MSE(LSB-1)=$\frac{1}{2^1\times 2^1}\sum_{i=0}^{1}\sum_{j=0}^{1}(i-j)^2$
- MSE(LSB-2)=$\frac{1}{2^2\times 2^2}\sum_{i=0}^{3}\sum_{j=0}^{3}(i-j)^2$
- How about LSB-k?
- MSE(LSB-k)=$\frac{1}{2^k\times 2^k}\sum_{i=0}^{2^k-1}\sum_{j=0}^{2^k-1}(i-j)^2$
- You can simplify the expression
- MSE(LSB-k)=$\frac{2^{2k}-1}{6}$

K	1	2	3	4	5	6	7
MSE	0.5	2.5	10.5	42.5	170.5	?	?

Assignment 05

- Given k, show that the mean square error for LSB-K is

  MSE(LSB-k)=$\sum_{i=0}^{2^k-1}\sum_{j=0}^{2^k-1}(i-j)^2=\frac{2^{2k}-1}{6}$
- Type your proof in a word file using mathematical expression
- Submit: both word file and PDF file
- Deadline: 03/25 (Monday) 23:30