Q1-1: If the size of Input matrix I is NxN and the kernel/filter size is KxK, what is the size of the output matrix after performing convolution? Assume N>K, no padding, and stride (how much we move the kernel each time) = 1.

1. (N - K + 1) x (N - K + 1)
2. (N - K) x (N - K)
3. (N - K - 1) x (N - K - 1)
4. None of the above

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1. **(N - K + 1) x (N - K + 1)** 
2. (N - K) x (N - K)
3. (N - K - 1) x (N - K - 1)
4. None of the above

- When sliding to the right, we have N-K+1 so many positions
- Similar when sliding downwards

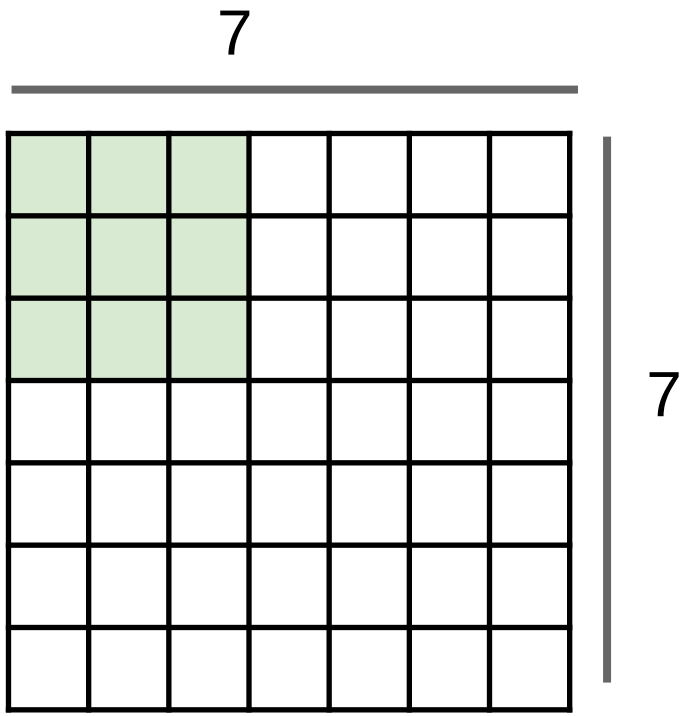
Q2-1. Suppose we want to perform convolution on a single channel image of size 7x7 (no padding) with a kernel of size 3x3, and stride = 2. What is the dimension of the output?

A. 3x3

B. 7x7

C. 5x5

D. 2x2



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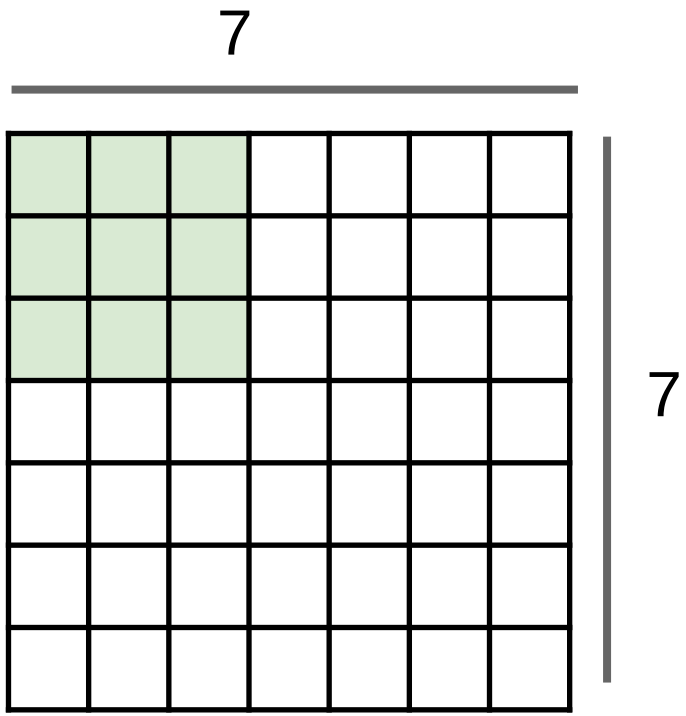

$$\lfloor (n_h - k_h + p_h + s_h)/s_h \rfloor \times \lfloor (n_w - k_w + p_w + s_w)/s_w \rfloor$$

Q2-2. Suppose we want to perform 2x2 average pooling on the following single channel feature map of size 4x4 (no padding), and stride = 2. What is the output?

12	20	30	0
20	12	2	0
0	70	5	2
8	2	90	3

A.

20	30
70	90

B.

16	8
20	25

C.

20	30
20	25

D.

12	2
70	5

Q2-2. Suppose we want to perform 2x2 average pooling on the following single channel feature map of size 4x4 (no padding), and stride = 2. What is the output?

12	20	30	0
20	12	2	0
0	70	5	2
8	2	90	3

A.

20	30
70	90

B.

16	8
20	25

C.

20	30
20	25

D.

12	2
70	5