

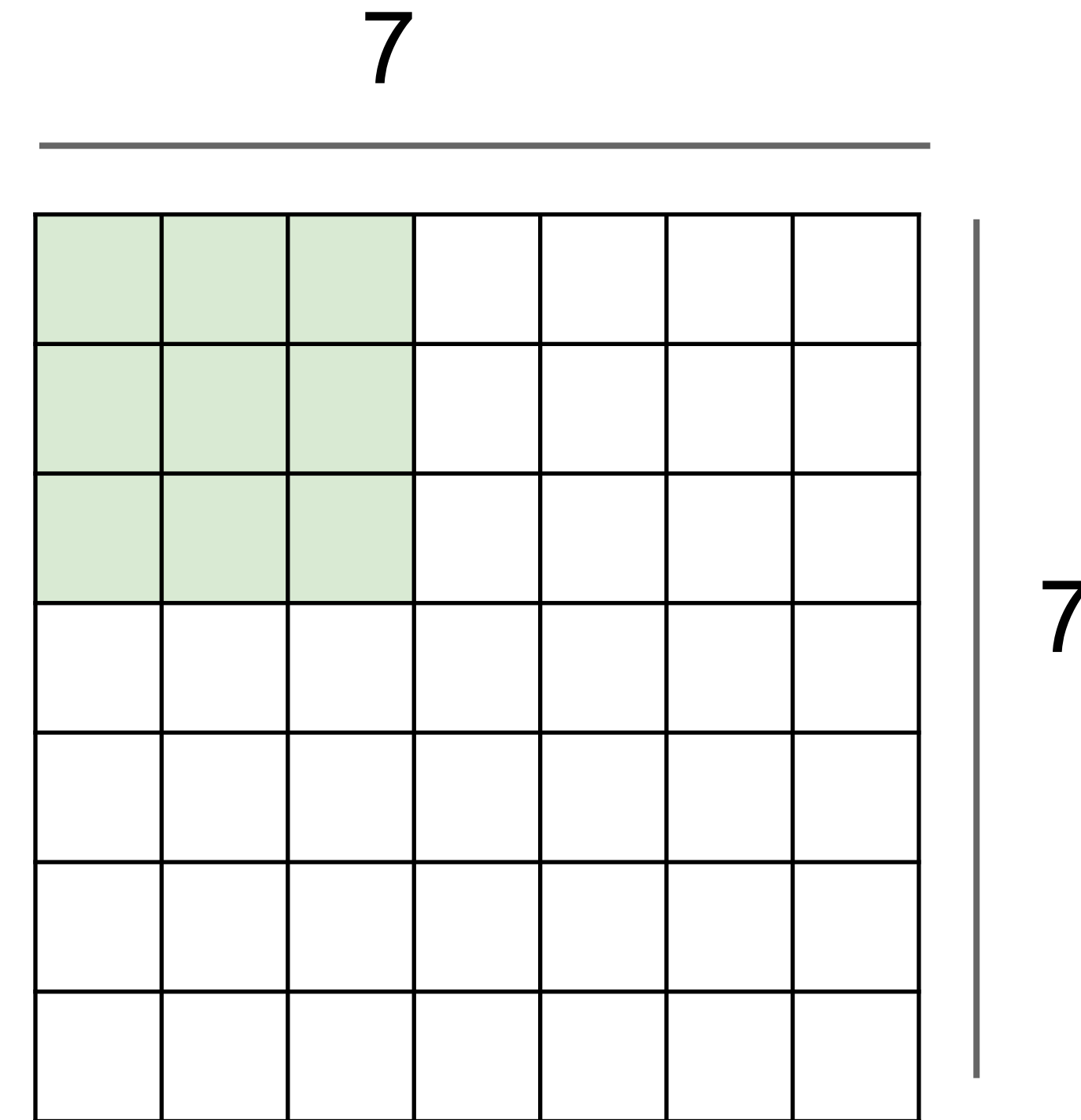
Q1. Suppose we want to perform convolution on a single channel image of size 7x7 (no padding) with a kernel of size 3x3, and stride = 2. What is the dimension of the output?

A. 3x3

B. 7x7

C. 5x5

D. 2x2



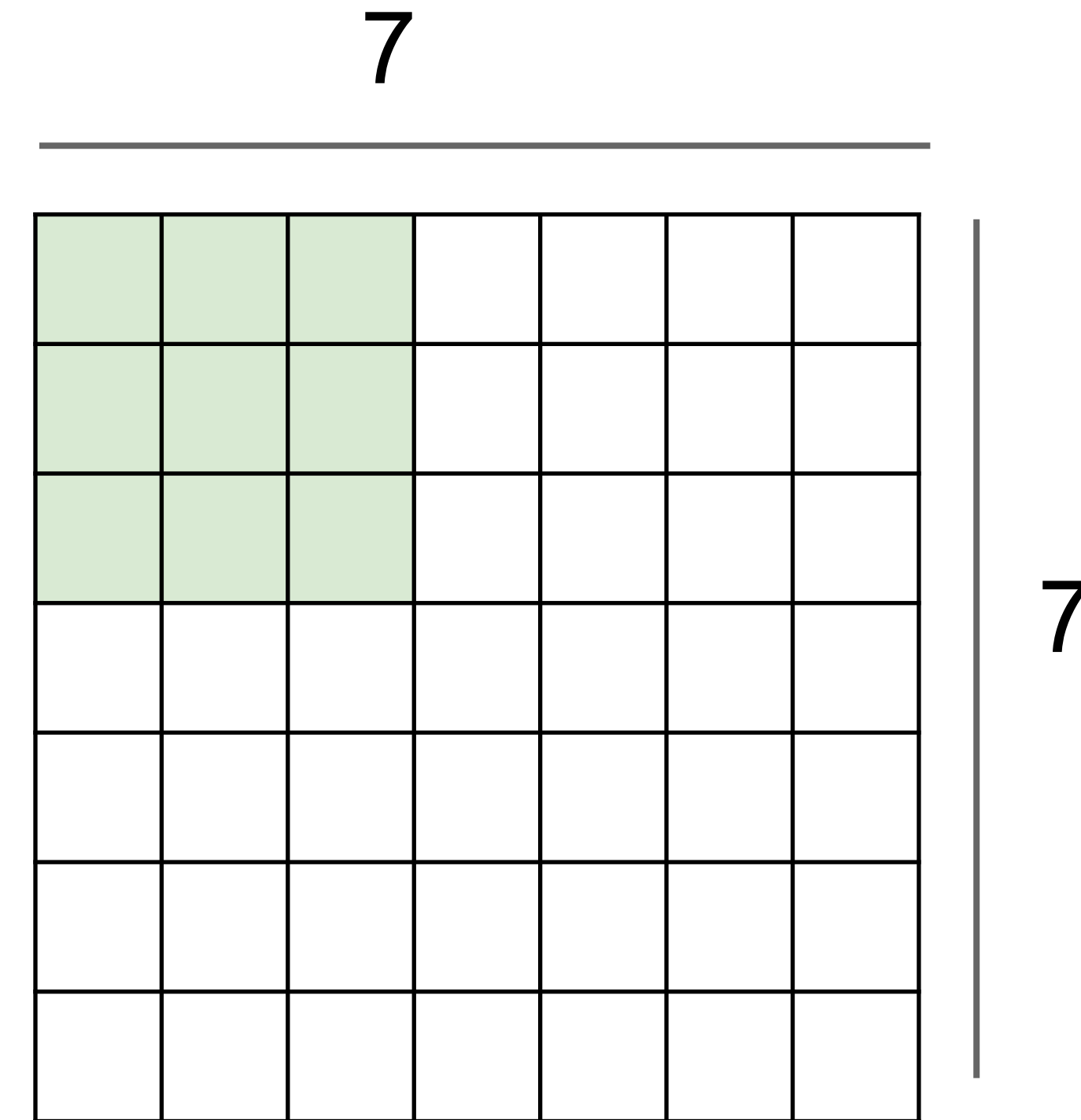
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$$\lfloor (n_h - k_h + p_h + s_h) / s_h \rfloor \times \lfloor (n_w - k_w + p_w + s_w) / s_w \rfloor$$

Q3-1. Suppose we want to perform convolution on a RGB image of size 224x224 (no padding) with 64 kernels of size 3x3. Stride = 1. Which is a reasonable estimate of the total number of scalar multiplications involved in this operation (without considering any optimization in matrix multiplication)?

A. $64 \times 3 \times 3 \times 221 \times 221$

B. $64 \times 3 \times 3 \times 221$

C. $3 \times 3 \times 221 \times 221$

D. $64 \times 3 \times 3 \times 3 \times 221 \times 221$

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Q 3-2. Suppose we want to perform convolution on a RGB image of size 224x224 (no padding) with 64 kernels of size 3x3. Stride = 1. Which is a reasonable estimate of the total number of learnable parameters?

A. $64 \times 221 \times 221$

B. $64 \times 3 \times 3 \times 221$

C. $3 \times 3 \times 3 \times 64$

D. $(3 \times 3 \times 3 + 1) \times 64$

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B. $64 \times 3 \times 3 \times 221$

C. $3 \times 3 \times 3 \times 64$

D. $(3 \times 3 \times 3 + 1) \times 64$

Q2-1. 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?

A.

20	30
70	90

B.

16	8
20	25

C.

20	30
20	25

D.

12	2
70	5

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

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Q2-2. What is the output if we replace average pooling with 2 x 2 max pooling (other settings are the same)?

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