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Ex 5

### Task I

Padding size formula:  $\left(\frac{k-1}{2}\right)$  here is zero

Output size formula:  $\frac{\text{InputSize} - \text{kernelSize} + 2 \times \text{PaddingSize}}{\text{Stride}} + 1$

Number of multiply-add operations in CNL:  $\text{OutputSize} \times \text{OutputChannels} \times (\text{kernelSize}^2 \times \text{inputChannels} + 1)$

Number of parameters in CNL:  $\text{OutputChannels} \times (\text{kernelSize}^2 \times \text{inputChannels} + 1)$

Fully connected layers number of multiply-add operations:  $\text{OutputNeurons} \times (\text{inputneurons} + 1)$

Number of parameters in FCL:  $\text{OutputNeurons} \times (\text{inputNeurons} + 1)$

Layer details	input	inputSize	outputSize	#Parameters	#multiply add
CNL: 5x5x32 - stride 1		47x47x3	43x43x32	2432	104576
CNL: 3x3x32 - S2		43x43x32	21x21x32	9248	194208
CNL: 3x3x32 - S1		21x21x32	19x19x32	9248	175712
CNL: 3x3x32 - S2		19x19x32	9x9x32	9248	83232
CNL: 3x3x32 - S1		9x9x32	7x7x32	9248	64736
Flattening		7x7x32	1568	0	0
FC - 128		1568	128	200832	200832
FC -		128	10	1290	1290
overall - - - - -				241546	824586