

In this question, you will be practicing filtering by hand on the following image. You will enter your final result for each question in the provided empty tables.

1	0	0	0	1
2	3	0	8	0
2	0	0	0	3
0	0	1	0	0

Note that you do not have to fill all the cells. If a cell contains a number that is not an integer, enter it as a fraction.

### Question (1a)

Apply the correlation filter to the image with **no padding**.

0	0	1
0	0	0
-1	0	0

$$m=3$$

$$k = \lfloor \frac{m}{2} \rfloor = 1$$

Enter your final result here in integer or fraction:

	-2	0	1	
	0	8	-1	

1	0	0	0	1
2	3	0	8	0
2	0	0	0	3
0	0	1	0	0

### Question (1b)

Apply the convolution filter to the image with **no padding**.

0	0	1
0	0	0
-1	0	0



0	0	-1
0	0	0
1	0	0

Enter your final result here in integer or fraction:

	2	0	-1	
	0	-8	1	

1	0	0	0	1
2	3	0	8	0
2	0	0	0	3
0	0	1	0	0

**Question (1c)**

Apply the filter to the image with **zero padding** (zero padding means to pad your image with zeros; it is not the same as “no padding”).

$1/9$	$1/9$	$1/9$
$1/9$	$1/9$	$1/9$
$1/9$	$1/9$	$1/9$

Enter your final result here in integer or fraction:

0	0	0	0	0
0	$8/9$	$11/9$	$12/9$	0
0	$8/9$	$12/9$	$12/9$	0
0	0	0	0	0

1	0	0	0	1
2	3	0	8	0
2	0	0	0	3
0	0	1	0	0