COMP4421 (Fall 2018)

Assignment #2

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I. EXERCISES

1) **Solution**:

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2) **Solution**:

<1> Dilation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 |
| 0 | 0 | 0 | 1 | 1 | **1** | **1** | 1 |
| 0 | 0 | 0 | 1 | **1** | **1** | **1** | 1 |
| 0 | 1 | 1 | 1 | **1** | **1** | 1 | 1 |
| 1 | 1 | **1** | **1** | 1 | 1 | 1 | 0 |
| 1 | **1** | **1** | **1** | 1 | 0 | 0 | 0 |
| 1 | **1** | **1** | 1 | 1 | 0 | 0 | 0 |
| 1 | 1 | 1 | 1 | 0 | 0 | 0 | 0 |

<1> Erosion

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| 0 | 0 | 0 | 0 | **0** | **0** | **0** | 0 |
| 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 |
| 0 | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| 0 | **0** | **0** | **0** | 0 | 0 | 0 | 0 |
| 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

<2> Dilation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 |
| 0 | 0 | 0 | 0 | 1 | **1** | **1** | 1 |
| 0 | 0 | 0 | 1 | **1** | **1** | **1** | 1 |
| 0 | 0 | 1 | 1 | **1** | **1** | 1 | 0 |
| 0 | 1 | **1** | **1** | 1 | 1 | 0 | 0 |
| 1 | **1** | **1** | **1** | 1 | 0 | 0 | 0 |
| 1 | **1** | **1** | 1 | 0 | 0 | 0 | 0 |
| 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |

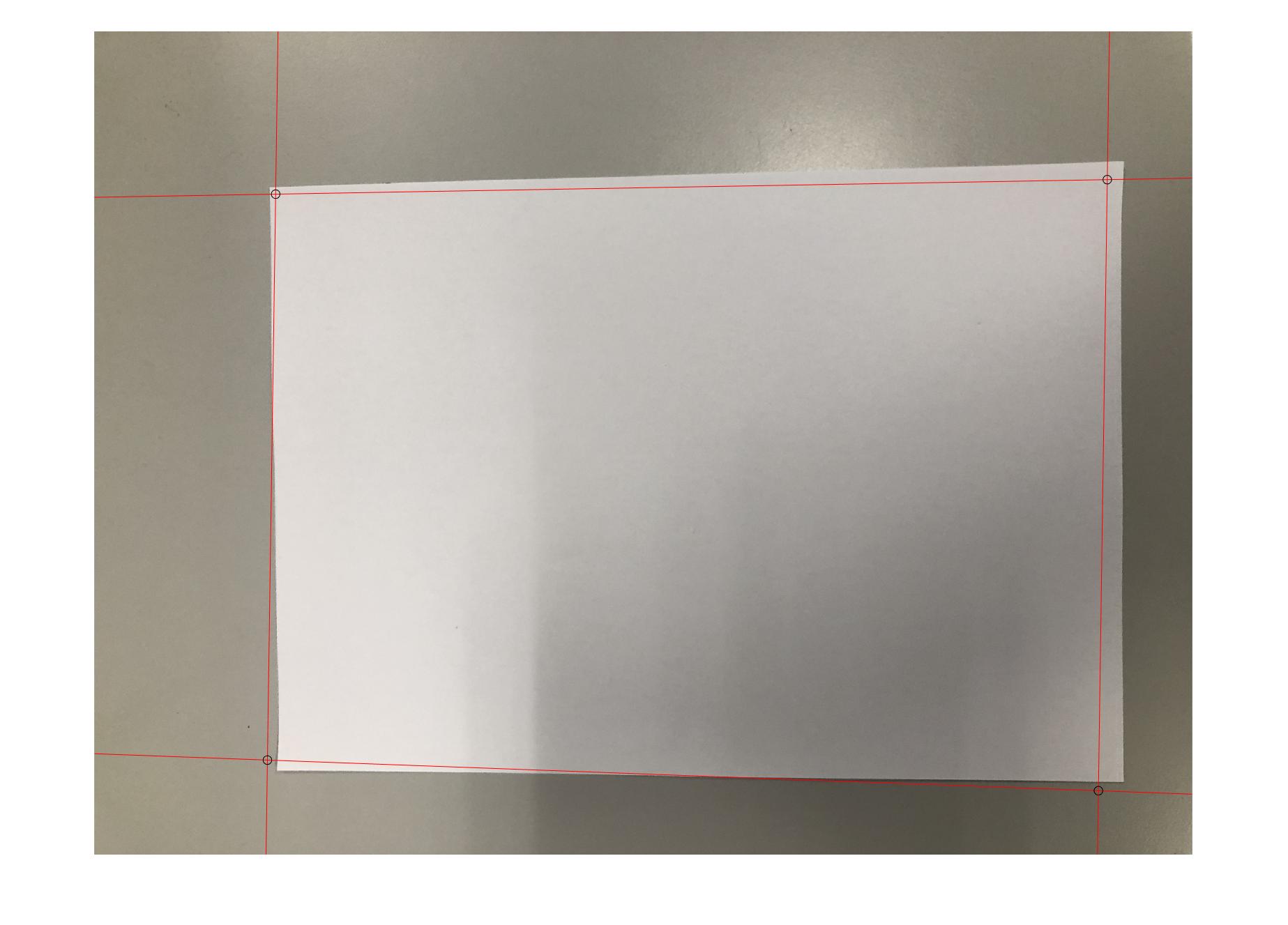
<2> Erosion

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | **0** | **0** | 0 |
| 0 | 0 | 0 | 0 | **0** | **1** | **0** | 0 |
| 0 | 0 | 0 | 0 | **0** | **0** | 0 | 0 |
| 0 | 0 | **0** | **0** | 0 | 0 | 0 | 0 |
| 0 | **0** | **1** | **0** | 0 | 0 | 0 | 0 |
| 0 | **0** | **0** | 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

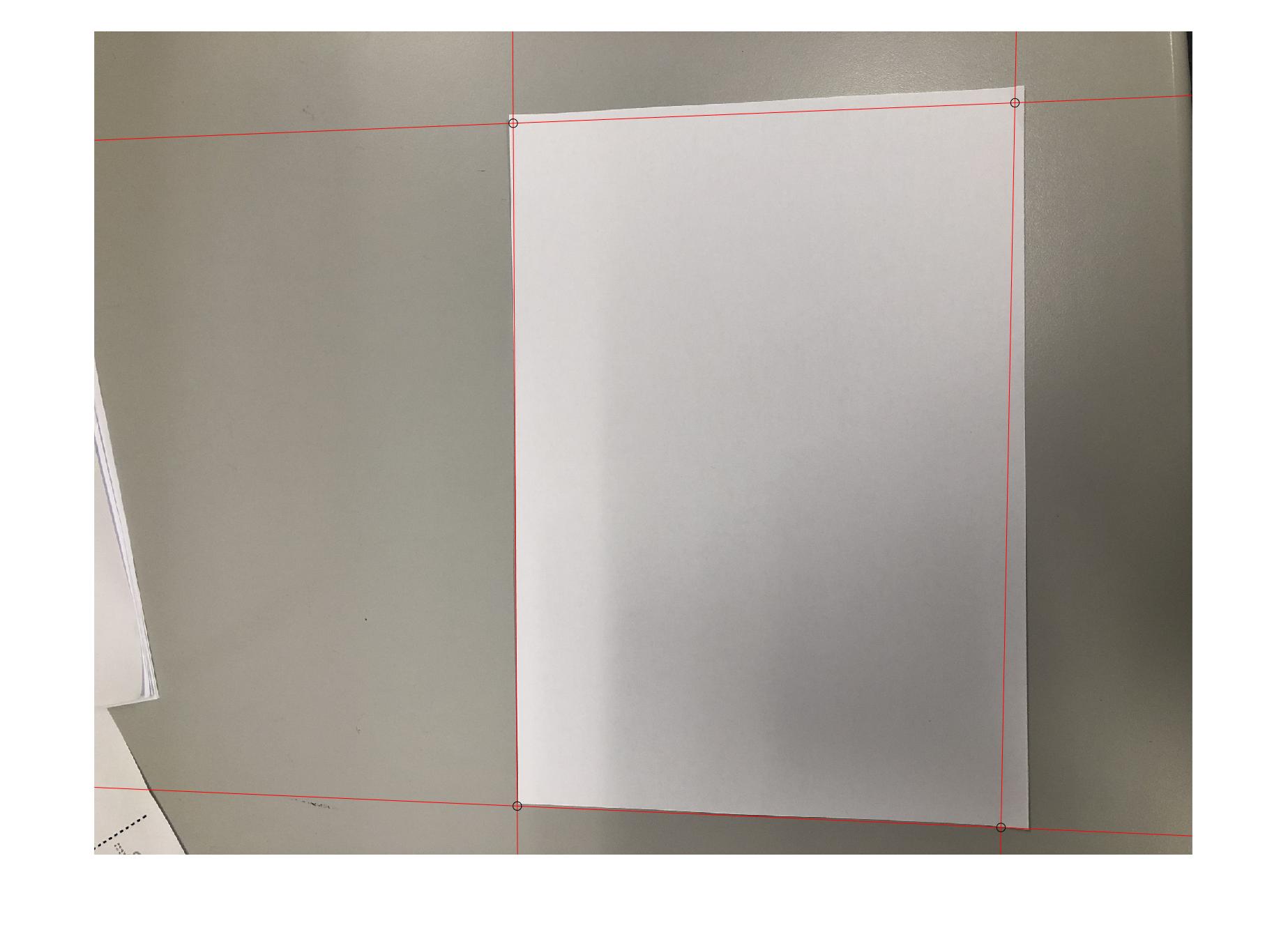
II. PROGRAMMING TASKS

1) **Hough Transform**

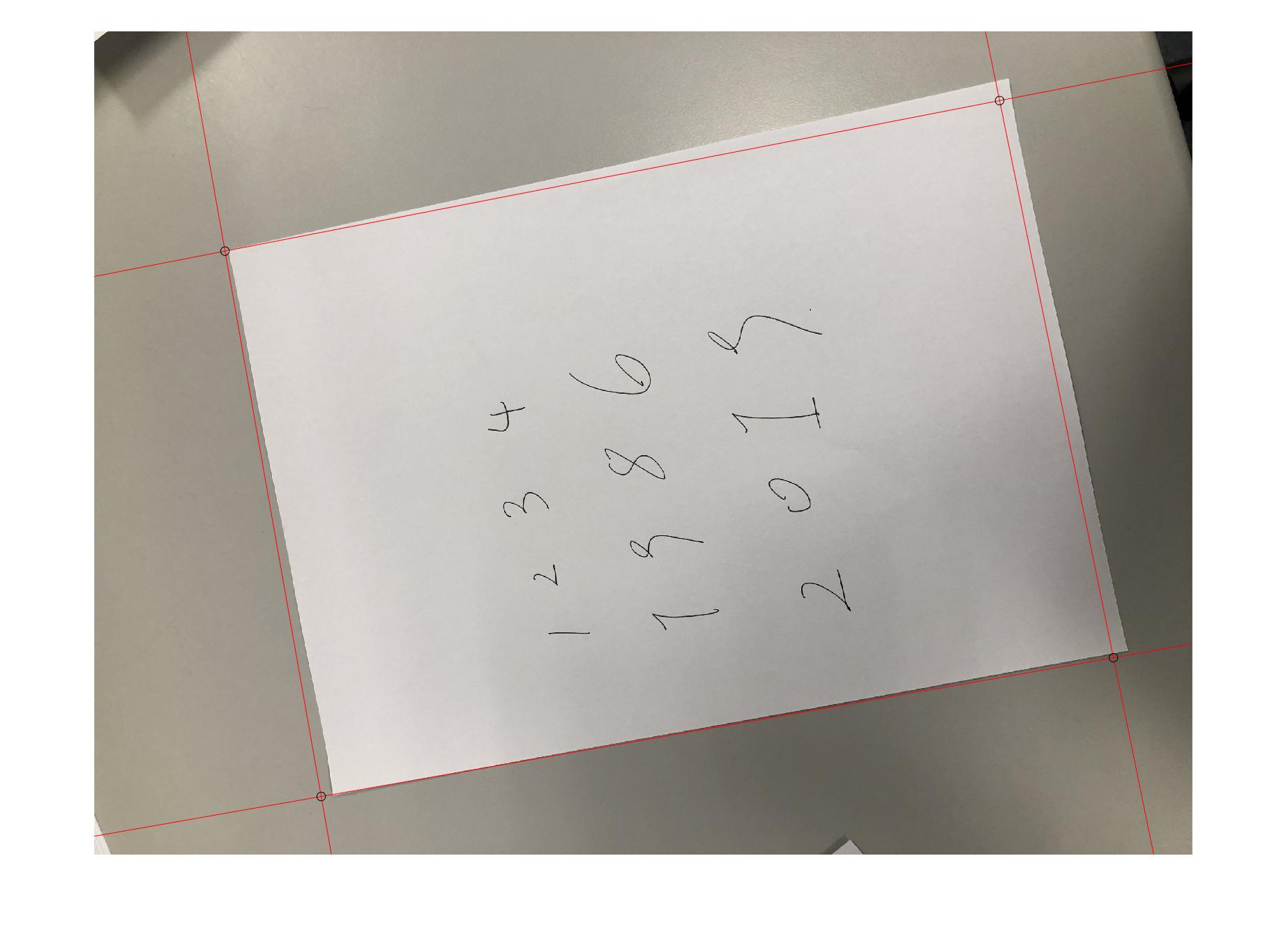
a)



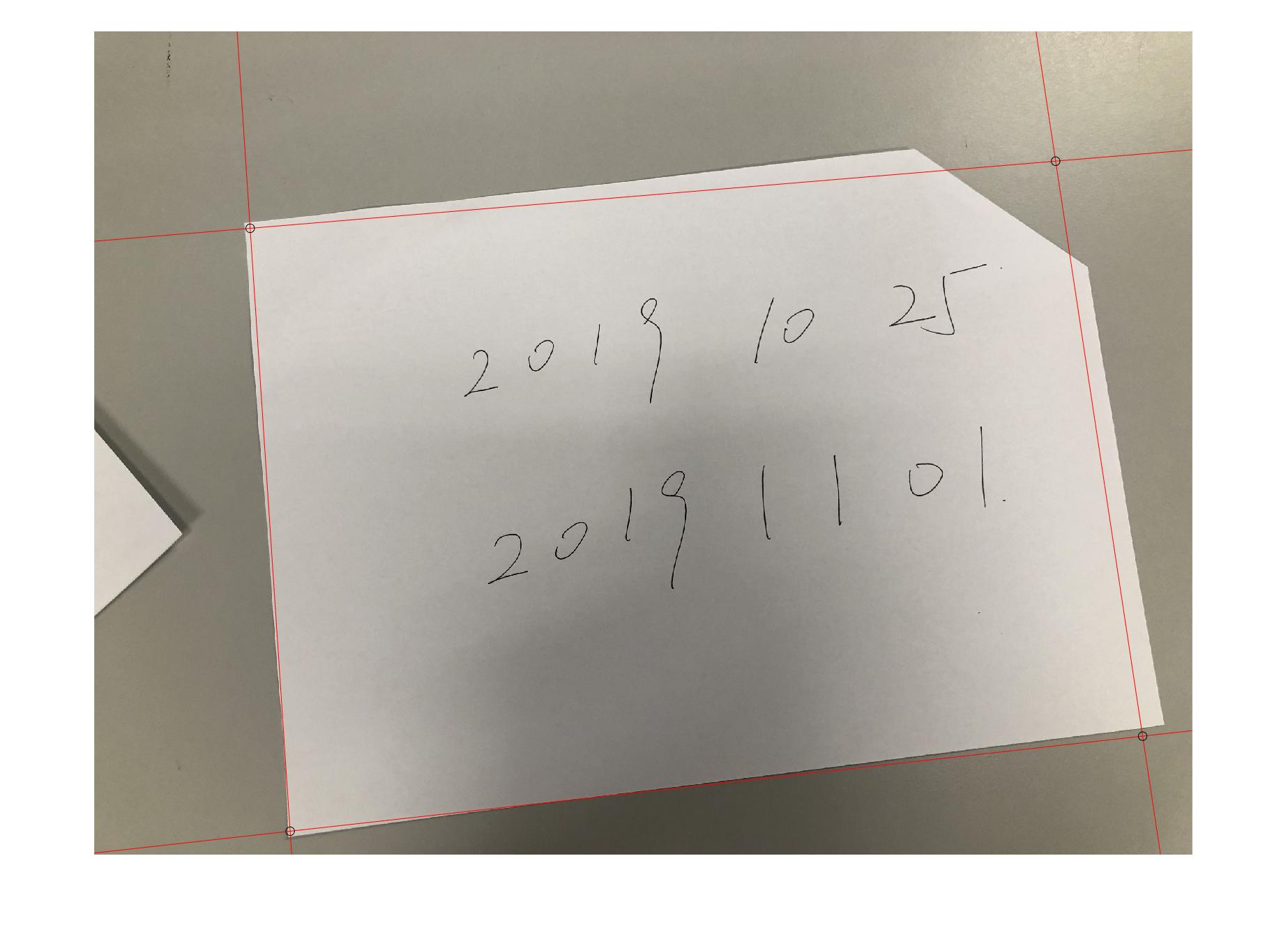
b)



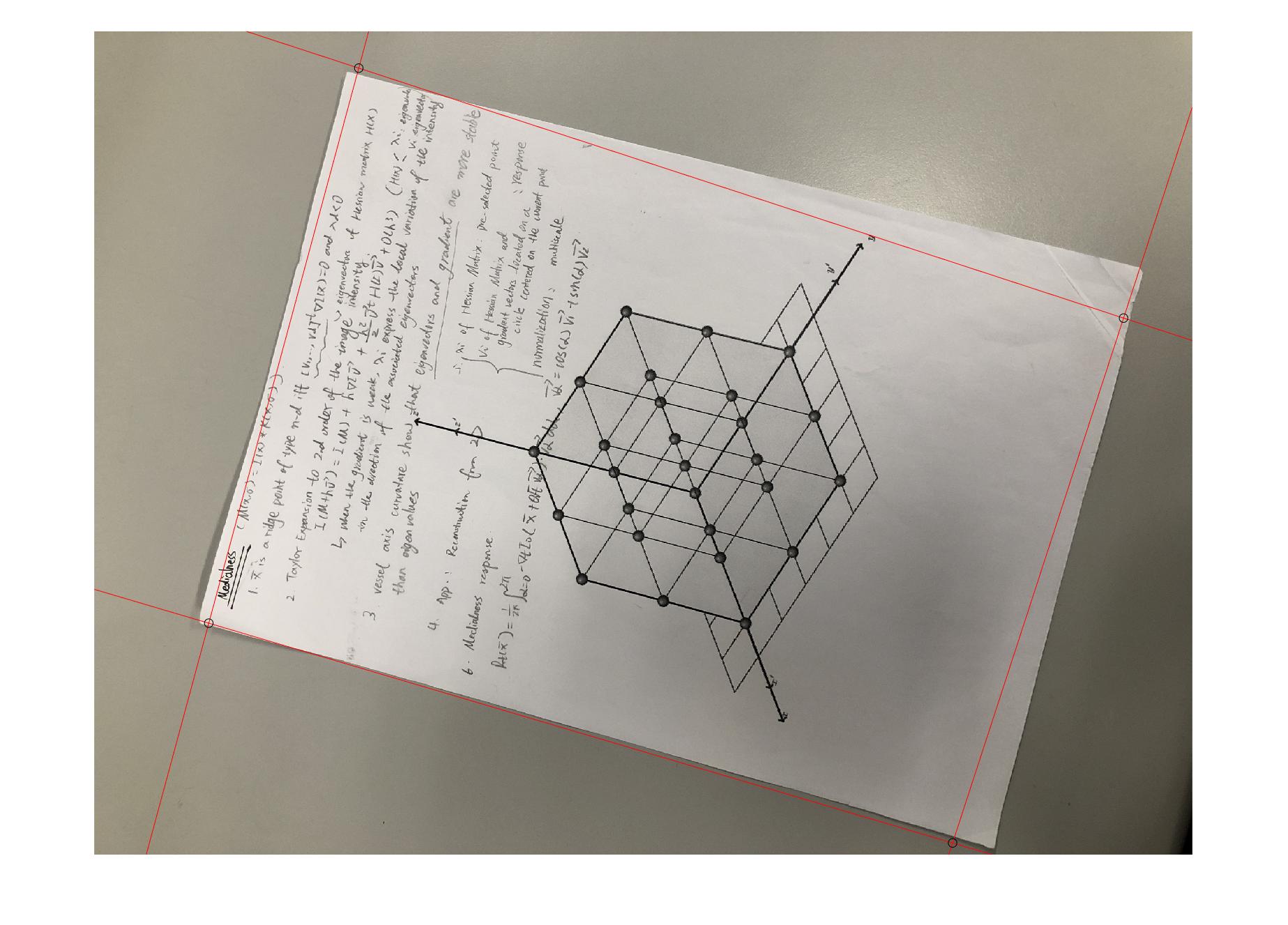
c)



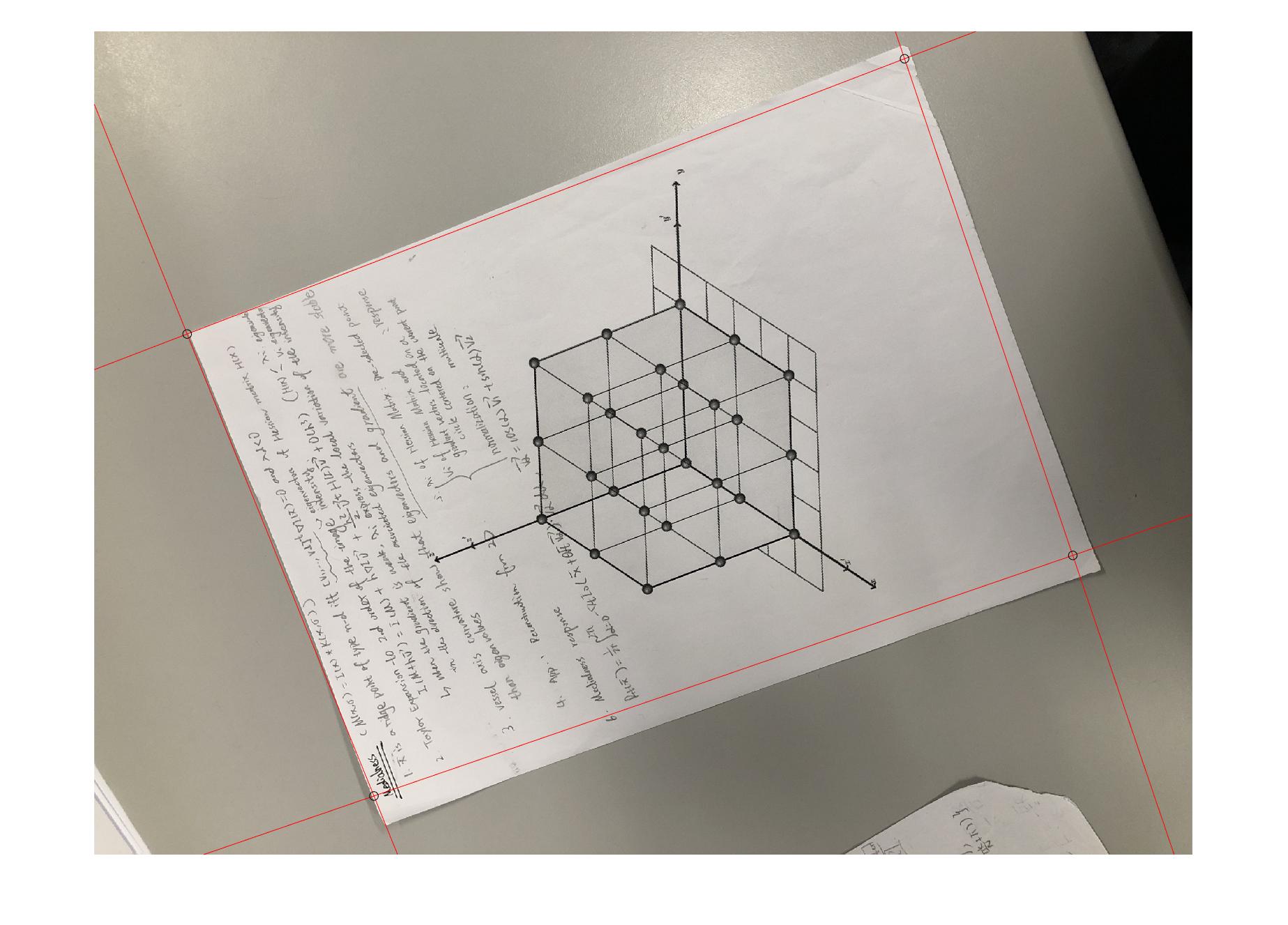
d)



e)



f)

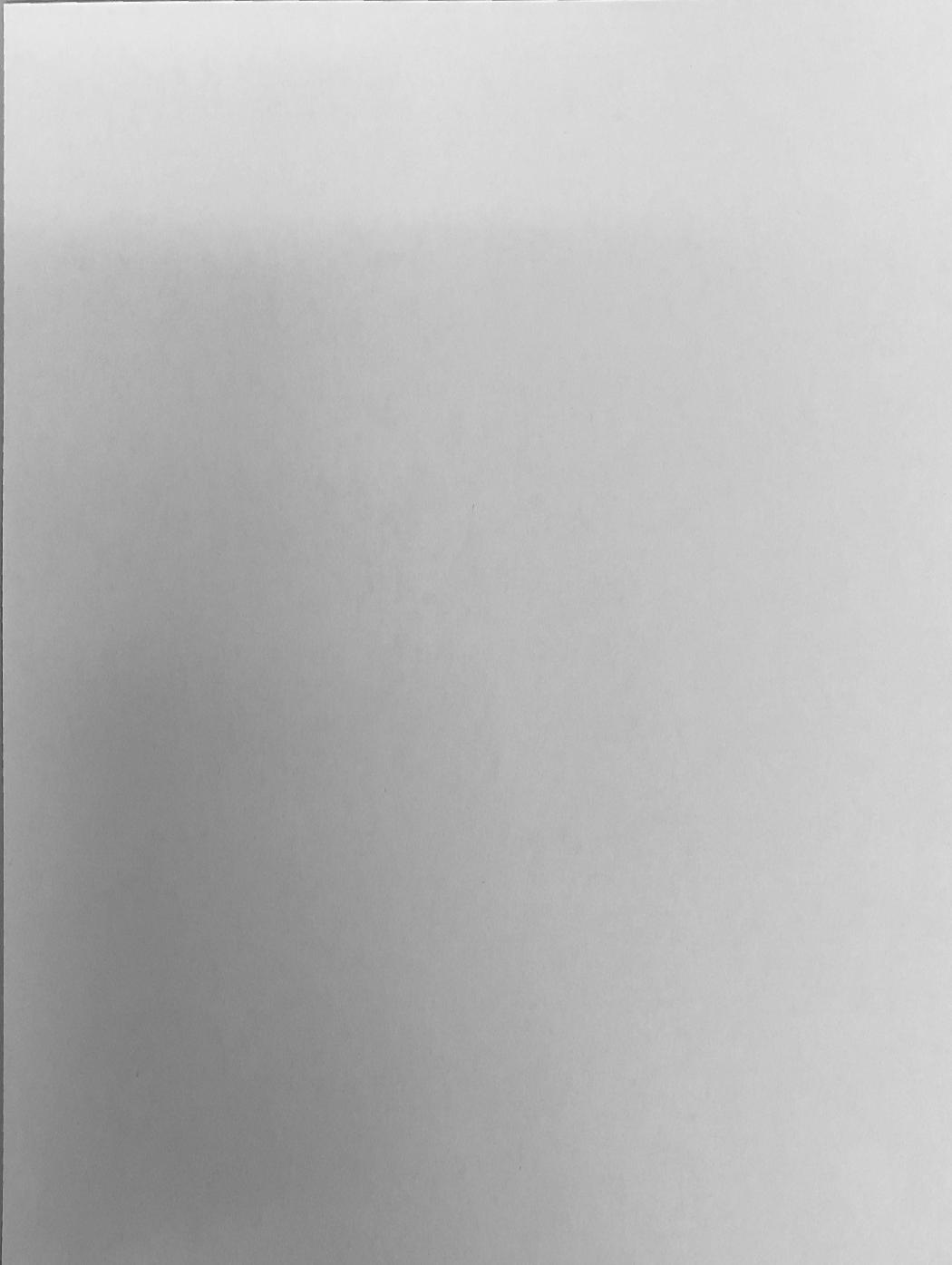


2) **Image Warping**

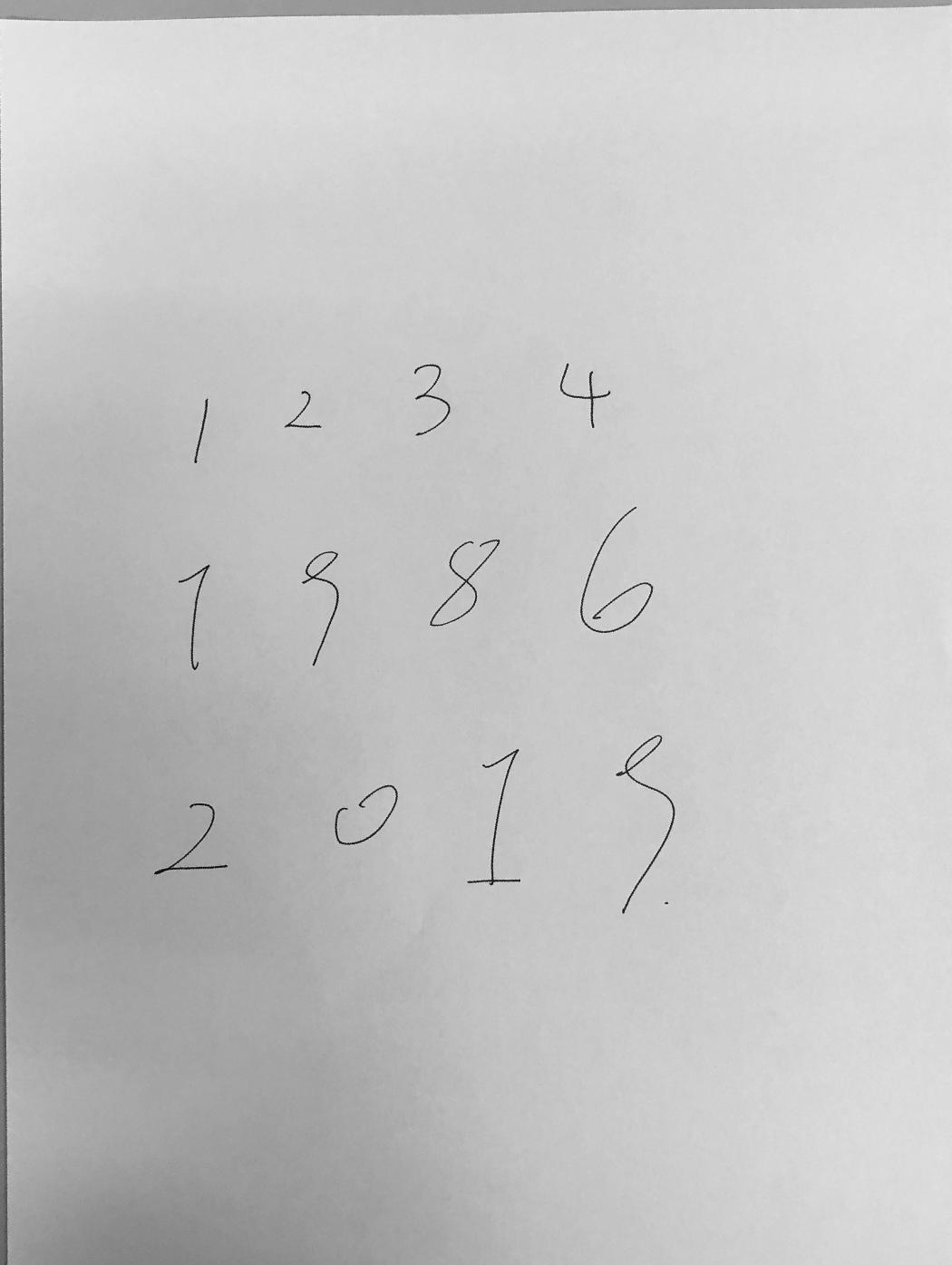
a)



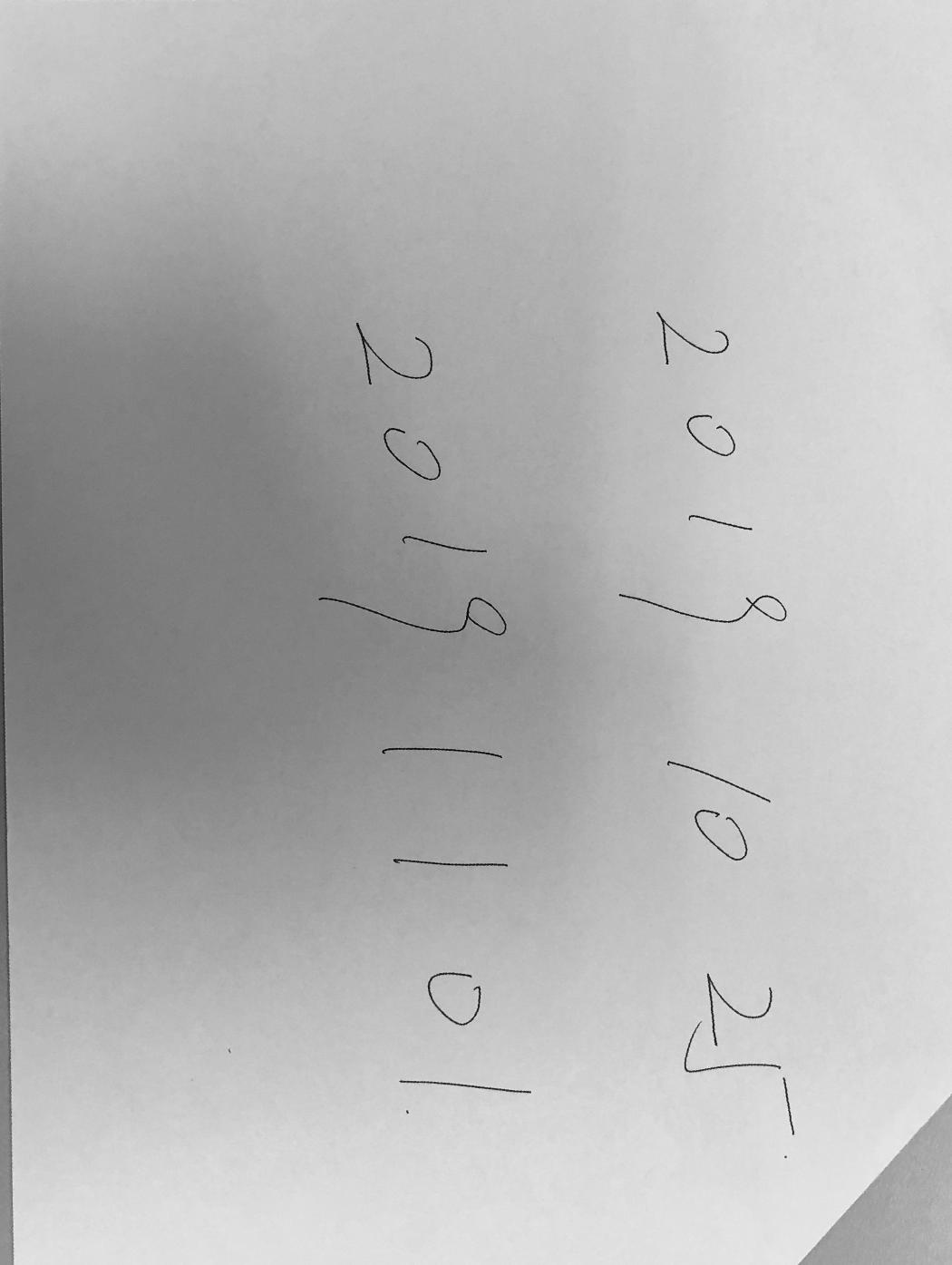
b)



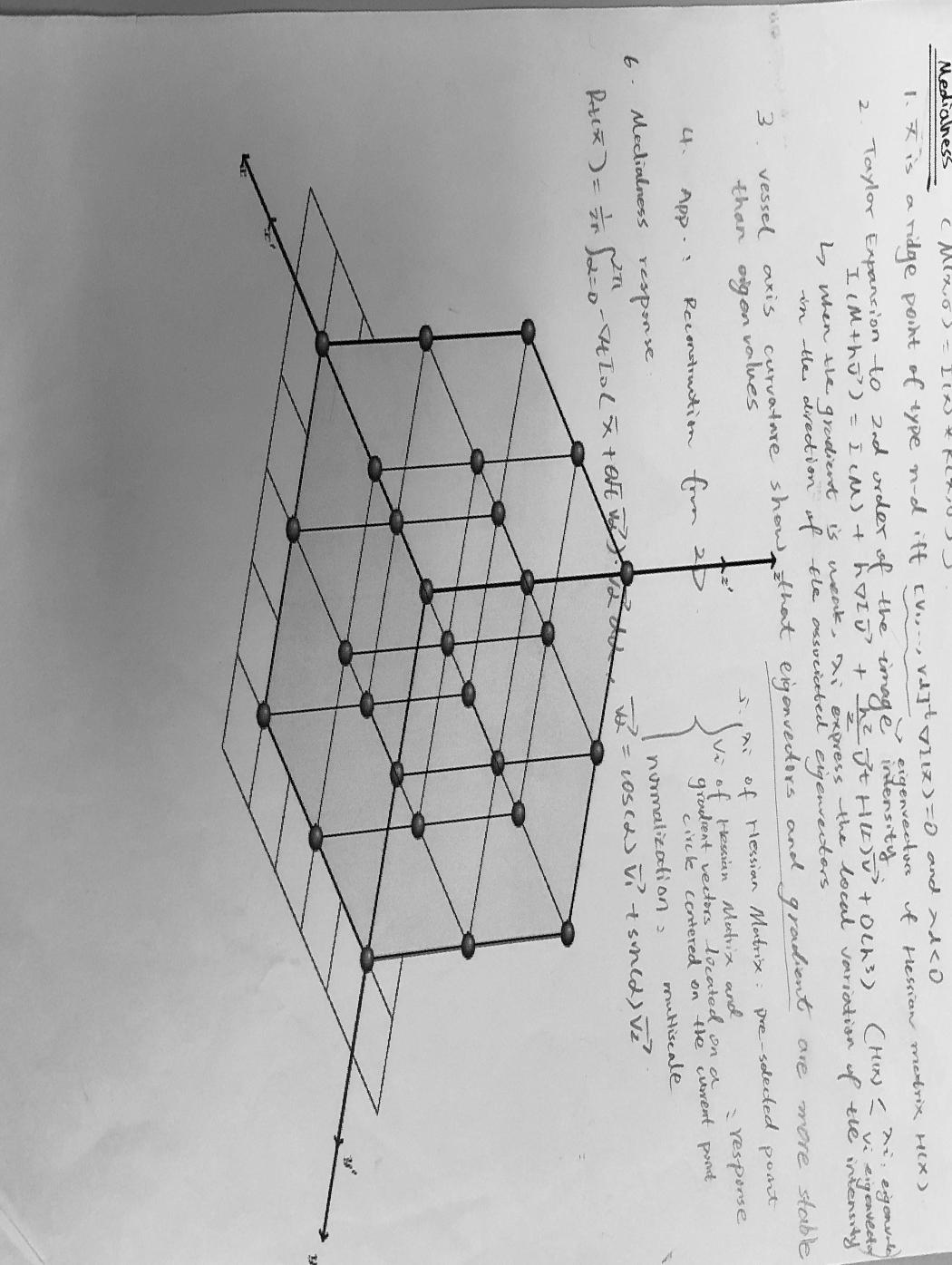
c)



d)



e)



f)

