

## Exercise 2 – Counting sunspots inside groups

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The following images show several sunspot groups, one group for each image, all taken with my solar equipment. Scale, resolution, brightness and sharpness are variable as it occurs when visually observing under different conditions.

Some images have been resized because they were originally at a too high resolution as one can see from certain details inside the largest spots. However I didn't want to reduce them too much because this is an exercise and the reader should still be able to see enough details for discriminating between pores and spot.

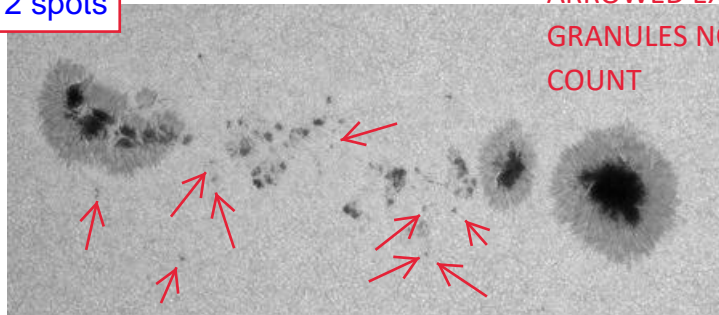
Based on the instructions already provided try to count sunspots inside each group and report your results.

As already explained this not mathematics, there is no THE solution, only individual counts that shall be evaluated together.

Always remember the difference between pores and spots.

### Exercise 2.1

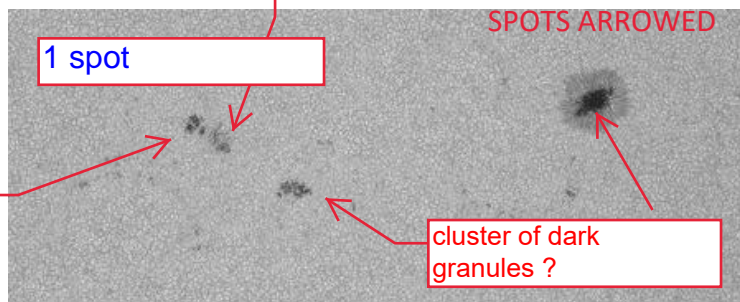
12 spots



ARROWED EXAMPLES OF PORES OR DARK GRANULES NOT TO BE INCLUDED IN THE COUNT

### cluster of dark granules 2.2

1 spot

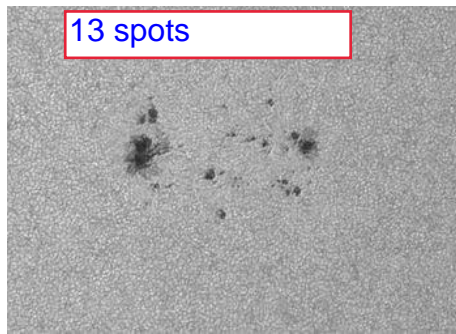


SPOTS ARROWED

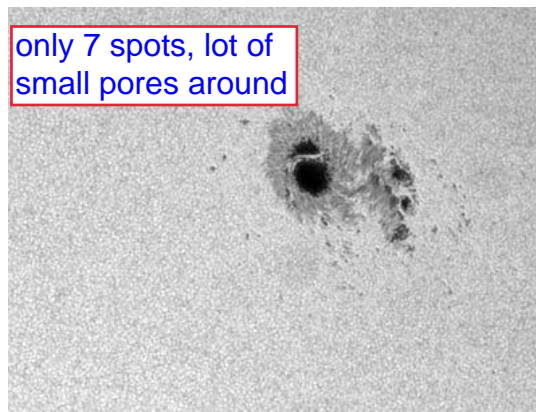
uncertain, worth to be examined at higher power

cluster of dark granules ?

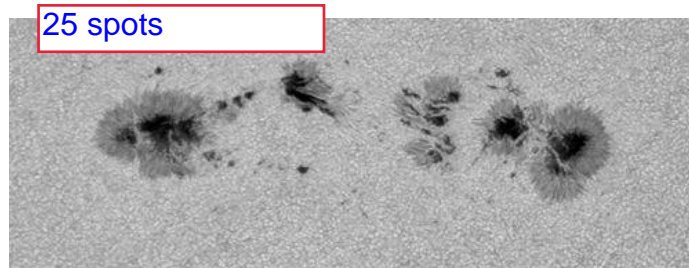
**Exercise 2.3**



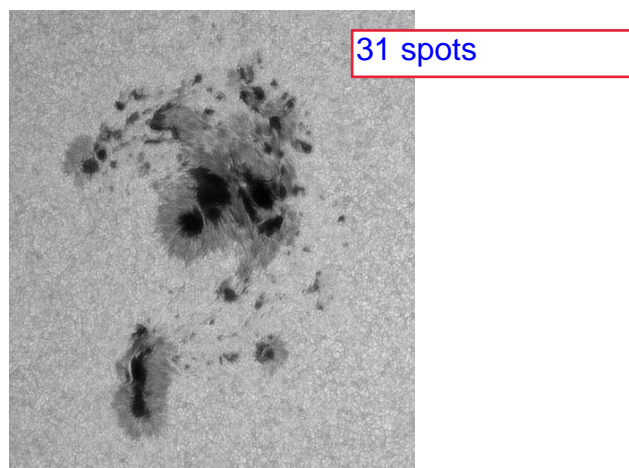
**Exercise 2.4**



**Exercise 2.5**



**Exercise 2.6**



### Exercise 2.7

Distinguishing between spots and pores when they are close to the limb and appear foreshortened is difficult and in this case counts are generally less reliable. The observer, however, should include even limb groups in his counts. Using of relatively high magnifications or enlarging the projected disc may be helpful.

