Problem 2

Material:
(1) A glow discharge lamp connected to 220 V, alternating current.
(2) A laser producing light of unknown wavelength.
(3) A grating.
(4) A transparent "micro-ruler", 1 mm long with 100 subdivisions, the ruler is situated exactly in the centre of the circle.
(5) A 1 m long ruler
(6) Writing material.

The spectrum of the glow discharge lamp has a number of spectral lines in the region yellow-orange-red. On of the yellow lines in the short wavelength part of this spectrum is very strong. Determine the wavelength of this spectral line. Estimate the accuracy of your measurement.

Note: If you happen to know the wavelength of the laser light beforehand you are not allowed to use that value in your computation.

Warning. Do not look into the laser beam. Do not touch the surface of the grating or the surface of the transparent micro-ruler.