

1. In a Plane transmission grating the angle of diffraction for second order principal maximum for the wavelength 5×10^{-5} cm is 30° . Calculate the number of lines/cm on the grating surface.
2. Calculate the highest order spectrum that can be obtained by monochromatic light of wavelength 6000 \AA by a grating with 6000 lines/cm.
3. A diffraction grating used at normal incidence gives a line 5400 \AA in a certain order superimposed on another line 4050 \AA of the next higher order. If the angle of diffraction is 30° , how many lines/cm are there on grating?



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4. In an experiment with grating, third order wavelength coincides with the four order spectral line of wavelength 4992 \AA . Calculate the value of the wavelength.

5. A grating has 620 rulings/mm and is 0.5mm wide. What is the smallest wavelength interval that can resolved in the third order at $\lambda = 481 \text{ nm}$?

6. Find the maximum resolving power of a grating 2 cm with 6000 lines/cm illuminated by a light of wavelength 5890 \AA .