

Experiment 29A

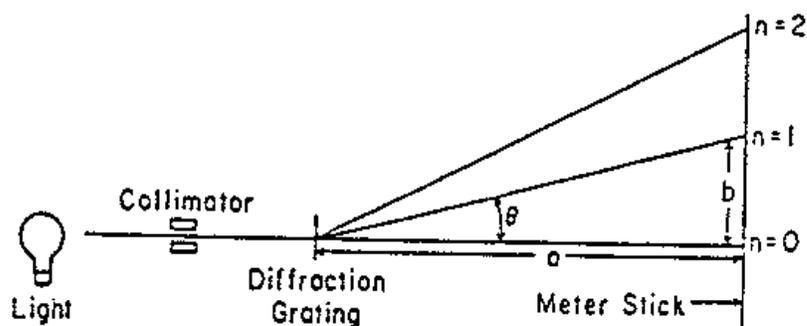
DETERMINATION OF THE WAVELENGTH OF DIFFRACTED LIGHT

MATERIALS:

Mercury and/or hydrogen vapor lamps, collimator, diffraction grating, meter stick.

PROCEDURE:

The following apparatus may be used to determine wavelength, λ , of light in the visible region.



Measure the distance a and the distance b for $n = 1$ and $n = 2$ order diffracted beams. Using $\tan \theta = b/a$ and the diffraction equation $n\lambda = d \sin \theta$ calculate the value of λ for the two different light sources. The diffraction grating has 15,000 lines/inch. Check your results with the values given in a handbook. Be careful of units.

Name _____ Section _____

Partner _____ Date _____

Data Section

Experiment 29A

MERCURY LAMP

n	a	b	tan θ	sin θ	d	λ ()
0		0	-	-	-	
1						
2						

HYDROGEN LAMP

n	a	b	tan θ	sin θ	d	λ ()
0		0	-	-	-	-
1						
2						

HELIUM LAMP

n	a	b	tan θ	sin θ	d	λ ()
0		0	-	-	-	-
1						
2						