Lab Group Number: _____

Air Wedges and Newton's Rings lab

Note: Be sure to get the required lab group Number from your teacher.

Air Wedges

You will first practice using the air wedge formula $T = \frac{\lambda L}{2 \Delta x}$ for known thickness.

1. Open the **VWedges** program
2. Select the wedge tab and change the thickness (T) to 500μm+20*(group number).
3. Verify that the thickness, T, matches the calculations, if you measure Δx, L using the built in ruler. (**hint**: For accuracy, measure across as many nodes as you can. Use a λ of your choosing so the nodes can be easily identified and measured.)
4. Retry, using the same thickness, but use other λ's (i.e. different colours). Which λ seems to give you a more accurate calculated value for T, or does it matter?
5. Now that you are familiar with the program, Select Material X from the dropdown box on the wedges tab.
6. Record the appropriate measurements and calculate the thickness of the materials.
7. Do the same for "Y". Ensure to show ALL calculations.

Newton's Rings

1. Select the Newton's Rings tab in the **VWedges** program.
2. Set the curvature to 60+5*group number
3. Set the wavelength of light to anything that you'd like to work with.
4. Choose "parabola" as the curvature to use.
5. Use the chart below or Copy the chart into your lab book
6. Measure the distance from the center of the lens to the middle of the appropriate fringe.
7. Use the number of dark/light bands from center to determine the thickness of the lens at that point.
8. Repeat for the circular curvature but keeping the curvature the same.
9. Plot the both sets of values on the same graph. Do a curve of best fit for each set of points. DON'T make the graph too small!!

Parabola λ = _____			Circular λ = _____		
Band	Distance from center	Thickness	Band	Distance from center	Thickness
1st bright			1st bright		
1st dark			1st dark		
2nd bright			2nd bright		
2nd dark			2nd dark		
3rd bright			3rd bright		
3rd dark			3rd dark		
4th bright			4th bright		
4th dark			4th dark		
5th bright			5th bright		
5th dark			5th dark		
6th bright			6th bright		
6th dark			6th dark		