

Name: _____

Section: _____

Data and Calculations for Experiment 2

Measurements

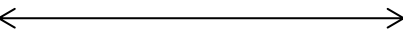
A. Temperature

1. Water at room temperature _____ °C
2. Boiling point _____ °C
3. Ice water
Unstirred _____ °C
Stirred _____ °C
4. Ice water with salt added _____ °C

B. Mass

1. 100 mL beaker _____ g
2. 250 mL Erlenmeyer flask _____ g
3. Weighing boat _____ g
4. Mass of weighing boat + sodium chloride _____ g
Mass of sodium chloride (show calculation setup) _____ g

C. Length

1. Length of  _____ cm
2. Height of 250 mL beaker _____ cm
3. Length of test tube _____ cm

D. Volume

1. 200 mL mark (from Erlenmeyer flask) water transferred to graduated cylinder _____ mL
2. Height of 5.0 mL of water in test tube _____ cm
3. Height of 10.0 mL of water in test tube _____ cm

Name: _____

Section: _____

E. Data Sheet for Density of an Object

Name of Object _____

Sample #	Object Mass (g)	Initial mL H ₂ O	mL H ₂ O w/ Object	Volume object (mL)	Density (g/mL)	Cumulative Sample #s	Cumulative volume (mL) (x-axis)	Cumulative object mass (g) (y-axis)
1	_____	_____	_____	_____	_____	1	_____	_____
2	_____	_____	_____	_____	_____	1 + 2	_____	_____
3	_____	_____	_____	_____	_____	1 + 2 + 3	_____	_____
4	_____	_____	_____	_____	_____	1 + 2 + 3 + 4	_____	_____
5	_____	_____	_____	_____	_____	1 + 2 + 3 + 4 + 5	_____	_____

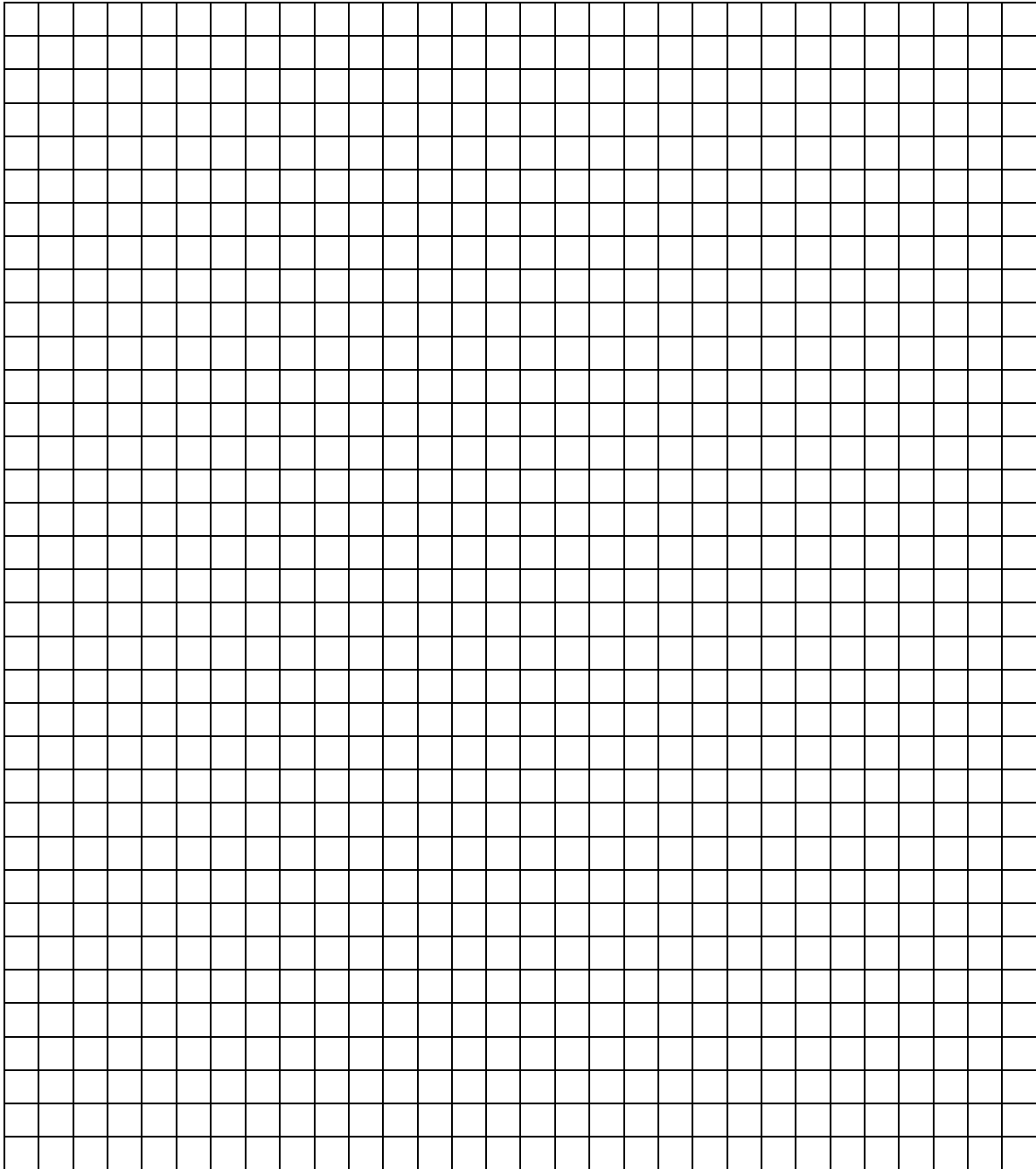
Graph the following:

Average Density = _____

Name: _____

Section: _____

Graph of Cumulative Mass versus Cumulative Volume



Average density of sample from calculated data: _____

Average density from graph: _____

Questions

1. Which would work better in this experiment as an unknown solid whose density is to be determined, wood chips or small quartz rocks? Explain your choice.
2. Why is it best to use a smaller graduated cylinder as opposed to a larger graduated cylinder for this experiment?
3. How well does the average density from the table and density from the slope of the graph compare? Which value is closer to the accepted density of your metal? (Refer to the *Handbook of Chemistry and Physics*). Calculate the percent error between your better value and the handbook value.
4. What is the density of a 9.343 gram piece of metal that causes the level of water in a graduated cylinder to rise from 5.1 to 8.1 mL when the metal is emerged in the water? Consider significant figures when doing the calculation.