Chemistry 111 - Laboratory Report Form Experiment 2: Chromatographic Separation and Identification of Metal Ions

Name	
Partner	

Date

- 1. Attach the chromatogram to this report.
- 2. Measure the distance the mobile phase traveled. $d_m =$ _____.
- 3. Complete the table below:

Metal ion	Color of ion after being developed	Distance metal ion traveled (d _a)
Fe ³⁺		
Co ²⁺		
Cu ²⁺		
Unknown ion 1		
Unknown ion 2		

4.	Calculate the R_f for the Fe ³⁺ . (She	w calculation below.) R	R _f =
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- 5. Calculate the R_f for the Co²⁺. (Show calculation below.) $R_f =$
- 6. Calculate the R_f for the Cu^{2+} . (Show calculation below.) $R_f =$
- 7. Calculate the R_f for unknown ion 1. (Show calculation below.) $R_f =$
- 8. Calculate the R_f for unknown ion 2. (Show calculation below.) $R_f =$
- 9. Identify the two ions in your unknown sample.

 Unknown Sample:
 Unknown ion 1:

 Unknown ion 2:

- 10. Answer the following short answer questions.
 - a. Are the metal ion solutions heterogeneous or homogeneous mixture? Explain.

b. Give two additional examples of separation techniques that can be used to separate the components of a mixture. (Hint: See chapter 1 of Brown, *et al.* Chemistry: The Central Science, 10th ed.)

c. Which ion displays the strongest affinity for the stationary phase? Explain.

d. Which ion displays the weakest affinity for the stationary phase? Explain.