Calculations:

Initial concentration of reactant ions

Refer to the table you used to fill each test tube. The original molarity of each solution is 2.00×10^{-3} M, but you need to calculate the molarity of iron (III) and thiocyanate AFTER they were mixed together. Each test tube contained a total volume of 10.0 mL, so each solution sample was diluted to a final volume of 10.0 mL. Recalculate the molarities of the ions, following this example for Fe in test tube #1. The numbers will be small.

$M_1V_1 = M_2V_2$ $\quad (2.00 \times 10^{-3})(5.0\text{ mL}) = M_2(10.0\text{ mL}) \quad M_2 = 1.00 \times 10^{-3}$ M

Test Tube #	initial $[Fe^{+3}]$	initial $[SCN^-]$
1	1.00×10^{-3} M	_____
2	_____	_____
3	_____	_____
4	_____	_____
5	_____	_____

Determining the value of K

In this experiment you set up five different equilibrium mixtures containing Fe^{+3}, SCN^- and $[FeSCN]^{2+}$ Although each test tube contained different concentrations of the three ions, they should all have the same value of the equilibrium constant K. For each test tube, you will complete an initial/change/equilibrium (ICE) table so that you can determine the value of K. The diagram below is provided to help you set this up.

Write the expression for K_c and determine its numerical value using your information. You will repeat this process FIVE TIMES, one for each test tube. Show all work carefully ON SEPARATE SHEETS.

Ideally, your K values will all be the same. In reality, they will vary but they should be similar (same order or magnitude, anyway). Typical results for this experiment give K values between 100 and 200. Report your average value of K.

	Fe^{+3} (aq)	**+**	**SCN^- (aq)**	**↔**	**$[FeSCN]^{+2}$ (aq)**
initial M	**(table above)**		**(table above)**		**0**
change	_____		_____		_____
final M	_____		_____		**(from absorbance info.)**