Additional Problem 2.2.1

There was a concern that water from a holding pond contaminated a stream with cadmium (Cd). Two samples from the stream were collected and analyzed by GFAA (graphite furnace atomic absorption). Because of concern of matrix effects, both samples were also analyzed using a standard addition method (see section 5-3 of Harris text). Using the data given,

	HW2.2.1			
	Cadmium Standard, Unknown, and Standard Addition Analysis			
	Cd Standards	Absorbance Area		
	Conc. (ug/L)	(Au*s)		
	5	0.111		
	20	0.387		
	50	0.991		
	80	1.608		
	120	2.271		
		Unknowns - Absorbance Area (AU*s)		
	Sample #	Just Sample	Sample + 20 ug/L	Sample + 50 ug/L
	A	0.281	0.513	0.791
	B	0.371	0.608	0.855

Note: Samples A and B were diluted 4 mL of sample to 5 mL diluted sample (for all of the standard additions – Just sample and the 20 and 50 ug/L additions). The 20 and 50 ug/L refer to after dilution.

a) determine the concentration of Cd in samples A and B using both external standard and standard addition methods

b) determine whether you think the standard addition method was needed (this is not meant to be based on a statistical test – as we haven't covered that methodology yet – but on your assessment).