A Few Calculation Hints (extra sig figs shown)

25.0 mL of a 0.175 M KIO_3 solution is titrated to the end-point with 28.0 mL of a $Na_2S_2O_3$. What is the molar concentration of the $Na_2S_2O_3$?

Remember: 1 mol IO_3^- reacts with 6 mol $S_2O_3^{2-}$

Answer: 0.9375 M

25.0 mL of this $Na_2S_2O_3$ solution was used to titrate a solution containing 3.2 mL of the original bleach solution.

1	volume of original bleach sample (mL) titrated	3.2
2	mass, in g, of original bleach sample titrated*	3.47
3	final buret reading	
4	initial buret reading	
5	mL $Na_2S_2O_3$ added	25.0
6	mol $Na_2S_2O_3$ added	0.02344
7	mol ClO^- reacted	0.01172
8	mol "available chlorine" in titrated sample	0.01172
9	grams "available chlorine" in titrated sample	0.8309
10	percent "available chlorine" in original sample	23.94
11	average percent "available chlorine" in original sample	---
12	average percent, by mass, of NaOCl in original sample	25.14

*assume the density of the bleach sample is 1.084 g/mL

Hints:

**Remember: available chlorine (Cl_2) relationship: 1 mol Cl_2 produces 1 mol ClO^-

Row 7: ? mol ClO^- = 0.02344 mol $Na_2S_2O_3$

2 mol $S_2O_3^{2-}$ reacts with 1 mol I_2 ; 1 mol I_2 is produced when 1 mol ClO^- reacts.

Row 8: ? mol Cl_2 = 0.01172 mol ClO^-

Row 9: ? g Cl_2 = 0.01172 mol Cl_2

Row 10: ? g Cl_2 = 100 g liquid bleach

Row 11: Average of Row 10 results

Row 12 (in lab this uses row 11 average): ? g NaOCl = 100 g liquid bleach