(1)   Identity of Unknown Alcohol: **2-butanol**
Internal Standard Alcohol is Used: 1-propanol

(2)   Calculate Weight%:
Total solution mass:
2.03 + 1.03 + 1.03 = 4.09 g
Using mass of unknown:

$$[X] \quad Wt\% = \frac{1.03\,g}{4.09} \times 100 \quad = 25.18\%$$

Using mass of internal standard:

$$[S] \quad Wt\% = \frac{1.03\,g}{4.09} \times 100 \quad = 25.18\%$$

(3)   Calculate Response Factor:

$$F = \frac{A_X}{A_S} \cdot \frac{[S]}{[X]}$$

$$F = \frac{215.5370}{237.6870} \cdot \frac{25.18\%}{25.18\%} = 0.9068$$

(4)   Fill the record sheet table:

Substance	Grams	Weight%	Peak Areas			Average
			Run I	Run II	Run III	F
Methanol	2.03					
Unknown Alcohol	1.03	**25.18**	215.5370	246.1795		
Standard Alcohol	1.03	**25.18**	237..6870	271.3840		0.9069
Response Factor, F			**0.9068**	0.9071		

(5)   Calculation for the solution C:
Total solution mass:
1.02 + 2.51 (gram of solution A) = 3.53 g
Using mass of internal standard:

$$[S] \quad Wt\% = \frac{1.02\,g}{3.53\,g} \times 100 \quad = 28.90\%$$

Calculate Weight % of unknown alcohol in solution C:

$$[X] = \frac{A_X}{A_S} \cdot \frac{[S]}{F}$$

$$[X] = \frac{1.08.1295}{249.8050} \times \frac{28.90\ \%}{0.9069} \quad = 13.79\ \%$$

Weight % of Unknown Alcohol in Solution A:

$$Wt\% = 13.70\ \% \times \frac{3.53}{2.51} = 19.39\%$$

(**6**)   Fill the record sheet table:

DATA for Solution C					
Substance	Grams	Weight %	Peak Areas		
			Run I	Run II	Run III
Unknown Alcohol			108.1295	106.1210	
Standard Alcohol	1.02	28.90	249.8050	243.2470	
Weight % of Unknown Alcohol in Solution C:			**13.79 %**	13.90 %	
Weight % of Unknown Alcohol in Solution A:			**19.39 %**	19.55 %	

(**7**)   The final step:
Average Weight % of Unknown in Solution A:

$$Ave.Wt\% = \frac{19.39\% + 19.55\%}{2} = 19.47\%$$