Explain your answers with neat sketches whenever possible. Assume any missing data.

Assignment 4 – Datum Transformation

1. **Express your views about the following statements.**
   a. The importance of datum transformation in modern geospatial applications.
   b. A single global datum would be ideal for all geospatial work. Or there is value in maintaining regional datums. Explain your reasoning.
   c. The biggest challenges you see in ensuring accurate and consistent datum transformation.
   d. Datum transformation is the process of converting coordinates from one datum to another datum to ensure accurate positioning.
   e. The most common reason for needing datum transformation is because different countries might use global datums.
   f. Bursa-Wolf and Molodensky-Badekas are 7-parameter ***similarity*** transformations.
2. Using only neat sketches and mathematical functions differentiate between Bursa-Wolf and Molodensky-Badekas transformation models.
3. Using your written code of transformation (Take Home assignment 2), compute the similarity transformation parameters by Bursa-Wolf and Molodensky-Badekas transformation models between Helmert 1906 and WGS1984 based on the following common points: -

Point ID	**WGS 84**			**Helmert 1906**		
	φ°	λ°	h (m)	φ°	λ°	h (m)
1	29.9998	31.07671	110.422	29.99963	31.07503	100.466
2	30.00473	31.0883	102.437	30.00457	31.08662	92.451
3	30.00288	31.07981	106.25	30.00272	31.07814	96.285
4	29.99099	31.0714	109.606	29.99082	31.06973	99.666
5	29.99554	31.07639	106.401	29.99537	31.07472	96.447