



Explain your answers with neat sketches when applicable.

Assignment 7 - Map Projections in Egypt

1. What are the main elements to define a map projection system?
2. Explain the concept of zone systems in map projections. What is the purpose of dividing the Earth's surface into zones, and how does it affect the projection parameters? Provide examples of zone width and its impact on map accuracy.
3. Discuss the importance of the latitude of origin in map projections. Explain how it influences the shape and distortion of maps and provide examples of suitable latitudes of origin for different regions.
4. Describe the role of the longitude of origin (central meridian CM) in map projections. Explain how it affects the shape and distortion of maps and provide examples of central meridians for different regions.
5. Explain the concept of false easting and false northing in map projections. Discuss their purpose and how they help eliminate negative coordinates in a projected coordinate system. Provide examples of suitable false easting and false northing values for different regions.
6. Discuss the significance of the scale factor at the central meridian (CM) in map projections. Explain how it affects the scale of the map and provide examples of scale factors for different projections.
7. Explain the key characteristics and applications of the Egyptian Transverse Mercator projection. Discuss how this projection is specifically suited for mapping Egypt's geographic area and its practical advantages.
8. Discuss the rationale behind dividing the area of Egypt into three vertical strips or zones in the Egyptian Transverse Mercator projection. Explain the benefits and considerations of this zoning approach for mapping and cartographic purposes.
9. Discuss the significance of using the WGS 1984 datum in the Modified Egyptian Transverse Mercator projection. Explain how this modern datum enhances the accuracy and compatibility of the projected coordinates with global positioning systems (GPS) and other geospatial technologies.