Midterm Spatial Databases Sample Questions

1. Maps
   1. The equatorial circumference of the Earth is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ km
   2. An azimuth of 213° is the same as a bearing of \_\_\_\_\_\_\_\_\_\_\_
   3. Types of maps (select the best descriptive word for each part)
      1. A map which is displayed on a computer screen is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ map
      2. When we give directions to someone over a phone, both parties are using a kind of map referred to as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ map
   4. One of the technical terms for a line of constant bearing is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. The grid line on the Earth's surface that goes through Greenwich, England is known as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. The distance between two consecutive degrees of latitude is a "constant" which is roughly equal to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ km
   7. The width, in degrees of longitude, of a UTM zone is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   8. The latitude of the North pole is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   9. The most famous map of the world, is a standard tangent cylindrical projection due to Gerardus \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   10. A map that preserves angles and shapes, locally, is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   11. When the "perspective" of a map is the center of the Earth, the map is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   12. The "aspect" of a conic projection is usually
       1. Equatorial
       2. Polar
       3. Oblique
2. Compute, explaining your steps a bit, the distance between (140° W, 45° N) and (120° W, 45° N), if one follows a latitudinal grid line (line of constant bearing).
3. Compute and explaining, the great circle distance between (140° W, 45° N) and (100° W, 30° N).
4. Latitude of 30°, 30 minutes and 30 seconds would be expressed as what in decimal degrees?
5. Explain secant cylindrical projection, and what advantage it might have over a tangent projection.
6. Define each…
   1. Azimuthal projection
   2. Geoid
   3. The interior of a region E
   4. A metric on n dimensional real space