**ES302 Reading Review Questions Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Base Maps**

Read the chapter on base maps, located for download at the following URL on the class web site:

[https://people.wou.edu/~taylors/g302/Ch2\_Base\_Maps.pdf](https://people.wou.edu/~taylors/g302/Ch1_Intro_Geo_Maps.pdf)

Using the reading resource and ancillary internet search tools (google, Wikipedia, etc.), answer the following questions.

1. Based on the introductory paragraph, what is the primary problematic aspect of 2-dimensional mapping of a 3-dimensional world?
2. Examine Figure 2-1, answer the following questions:
   1. Lines of parallel measure longitude or latitude?
   2. Lines of meridian measure longitude or latitude?
   3. How is the prime meridian defined?
   4. How many minutes of angular measurement are contained in one degree?
   5. How many seconds of angular measurement are contained in one minute?
   6. What is the total number of degrees contained in a full circle of angular measurement?
   7. What is the total number of degrees contained in a straight line of angular measurement?
   8. True or False: lines of longitude form an angular measure of east-west locations on the globe.
   9. True or False: lines of latitude form an angular measure of north-south locations on the globe.
3. Read p. 16-18 and examine Figure 2-2, answer the following questions:
   1. True or False: the standard Mercator projection is formed by a cylinder with the line of tangency located at and parallel to the equator in and east-west direction. Draw a sketch or include an image capture to support your answer.
   2. True or False: the transverse Mercator projection is formed by a cylinder with the line of tangency oriented parallel to north-south lines of meridian. Draw a sketch or include an image capture to support your answer.
   3. True or False: Lambert conformal conic projections have two standard parallels formed by the intersection with the surface of the globe. Draw a sketch or include an image capture to support your answer.
   4. What does “UTM” acronym stand for?
   5. How many UTM zones is the Earth divided into and how many degrees of longitude are covered by each zone?
   6. Describe the coordinate system used for UTM in terms of “Easting” and “Northing”.
   7. Examine Figure 2-3 map example. What are the UTM coordinates of point X?

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1. Describe the technical aspects of a “topographic map”, what do they illustrate and define the notion of a “contour line”. Draw a sketch or provide an image to illustrate your answer.
2. What is the area covered by a standard US Geological Survey 7.5-minute quadrangle map.
3. Examine Figure 2-5 illustrating the coordinate system used in the U.S. Public Land Survey System and read the explanatory text. Answer the following questions:
   1. True or False: Townships measure locations in an East-West grid direction.
   2. True or False: Ranges measure locations in a North-South grid direction.
   3. True or False: a Township contains 36 sections.
   4. What are the dimensions of a square Township in miles?
   5. What are the dimensions of a square section in miles?
   6. If you own 6 sections of land, how many square miles of land do you own? How many acres? Show all of your math work and unit algebra.
4. Examine Figure 2-7 on p. 23, and read the explanatory text on map scales p. 21-22. Compare the three map scales 1:250,000 1:62,500 and 1:24,000. Answer the following questions:
   1. For each scale, 5 inches of map unit on each map, is equal to how many miles on the ground? Show all of your math work and unit algebra.
   2. Which scale map shows the greatest detail of topography and cultural features? Which scale map shows the lest detail?
   3. Which scale map shows the greatest detail with respect to contour interval? Which scale map shows the least detail with respect to contour interval?
5. Describe the difference between True North and Magnetic North arrows on a topographic map. Draw a sketch or provide image capture to illustrate your answer.
6. In terms of measuring direction, describe the difference between Quadrant Bearings and Azimuth. Draw a sketch or provide image capture to illustrate your answer.
7. Examine Figure 2-8. What is the compass bearing from point B to point C? Express as both a quadrant bearing and azimuth.
   1. Quadrant:
   2. Azimuth:
8. What is the azimuth bearing from point C to point A on Figure 2-8?
9. Examine Figure 2-10 and read the section on constructing topographic profiles on p. 26-27. Using the topographic map below and cross-section graph, draw a topographic profile along line E-F showing elevation changes on the landscape.



