GIS2 - LAB4

Name: _____

Projecting geographic coordinates onto commonly used planar mapping systems and seeing what happens.

Question 1: According to the attribute table, which three airports are the northernmost airports (in order)?

Top 3	Name	Latitude (DD - 4 decimal places)
1		
2		
3		

Question 2: According to the metadata, what is the geographic extent covered by your connections data? Report your answer using both the given DD and the DMS format for geographic coordinates.

Extent	DMS format	DD format (4 decimal places)
E		
W		
N		
S		

Question 3: According to the metadata, what is the geographic extent covered by your county data? Report your answer using both the given DD and the DMS format for geographic coordinates.

Extent	DMS format	DD format (4 decimal places)
E		
W		
N		
S		

Question 4: If you had a question about these county data, then how would you contact the responsible party by phone or email?

phone _____

email _____

Question 5: Preview your new county attribute table. Compare and contrast the auto-calculated shape area of Miami-Dade County, FL and the GEODETIC area of (sq.km).

auto-calculated value based on the coordinates _____

given geodetic value _____

Question 6: Preview your new connections attribute table. What are the perimeter (Shape_Length) and area (Shape_Area) values for the *Harrisburg to Denver* connection?

Shape_Length _____

Shape_Area _____

GIS2 - LAB4

Projecting geographic coordinates onto commonly used planar mapping systems and seeing what happens.

Question 7: On the US mapping system, which three airports were projected as the northernmost airports (in order)?

Top 3	Name	Northing (nearest m)	Latitude (DD - 4 decimal places)
1			
2			
3			

Question 8: On this US mapping system, which connection length suffered the most inflation because of how it was projected? The most deflation? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (NM)	Projected value (NM)	Distortion (NM)
Most inflated				
Least distorted				
Most deflated				

Question 9: On this US mapping system, which county area suffered the most inflation because of how it was projected? The most deflation? The least distortion? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (sq.km)	Projected value (sq.km)	Distortion (sq.km)
Most inflated				
Least distorted				
Most deflated				

Question 10: On the HIA-centered mapping and coordinate system, which three airports were projected as the three northernmost airports (in order)?

Top 3	Name	Northing (nearest m)	Latitude (DD - 4 decimal places)
1			
2			
3			

Question 11: On the HIA-centered mapping and coordinate system, which connection suffered the most inflation? The least distortion? The most deflation? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (NM)	Projected value (NM)	Distortion (NM)
Most inflated				
Least distorted				
Most deflated				

Question 12: On the HIA-centered mapping system, which county suffered the most inflation because of how it was projected? The most deflation? The least distortion? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (sq.km)	Projected value (sq.km)	Distortion (sq.km)
Most inflated				
Least distorted				
Most deflated				

GIS2 - LAB4

Projecting geographic coordinates onto commonly used planar mapping systems and seeing what happens.

Question 13: On the mapping and coordinate system for Minnesota's Central Zone, which three airports were projected as the three northernmost airports (in order)?

Top 3	Name	Northing (nearest m)	Latitude (DD - 4 decimal places)
1			
2			
3			

Question 14: On the mapping and coordinate system for Minnesota's Central Zone, which connection suffered the most inflation? Least distortion? The most deflation? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (NM)	Projected value (NM)	Distortion (NM)
Most inflated				
Least distorted				
Most deflated				

Question 15: On the mapping and coordinate system for Minnesota's Central Zone, which county suffered the most inflation? The most deflation? The least distortion? Support your answer with data. Round to 2 decimal places.

Type	Name	Geodetic value (sq.km)	Projected value (sq.km)	Distortion (sq.km)
Most inflated				
Least distorted				
Most deflated				

Question 16: On the mapping and coordinate system for UTM zone 17N, which three airports were projected as the three northernmost airports (in order)?

Top 3	Name	Northing (nearest m)	Latitude (DD - 4 decimal places)
1			
2			
3			

Question 17: On the mapping and coordinate system for UTM zone 17N, which length suffered the most inflation? The most deflation? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (NM)	Projected value (NM)	Distortion (NM)
Most inflated				
Least distorted				
Most deflated				

Question 18: On the mapping and coordinate system for UTM zone 17N, which county suffered the most inflation? The most deflation? The least distortion? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (sq.km)	Projected value (sq.km)	Distortion (sq.km)
Most inflated				
Least distorted				
Most deflated				

GIS2 - LAB4

Projecting geographic coordinates onto commonly used planar mapping systems and seeing what happens.

Question 19: On the mapping and coordinate system for New Mexico's East Zone, which three airports were projected as the three northernmost airports (in order)?

Top 3	Name	Northing (nearest m)	Latitude (DD - 4 decimal places)
1			
2			
3			

Question 20: On the mapping and coordinate system for New Mexico's East Zone, which connection suffered the most inflation? The most deflation? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (NM)	Projected value (NM)	Distortion (NM)
Most inflated				
Least distorted				
Most deflated				

Question 21: On the mapping and coordinate system for New Mexico's East Zone, which county suffered the most inflation? The most deflation? The least distortion? Use your data to support your answer. Round to 2 decimal places.

Type	Name	Geodetic value (sq.km)	Projected value (sq.km)	Distortion (sq.km)
Most inflated				
Least distorted				
Most deflated				

Question 22: The latest population estimate for Miami-Dade County, FL, is 2,751,796 people.
So, if you need to calculate the population density [Eq. 4] for Miami-Dade County, then which of your five projected Miami-Dade County polygons would give you an accurate result? Which planar mapping systems would lead you to overestimate population density because of the projection method that was used? Underestimate it? Explain your results and use your data and calculated population densities to support your claims.