

B - Road Scholar - December 19 SO Practice - 12-19-2020

1. (5.00 pts)

The location of a city is 44 degrees, 59 minutes, 11.9616 seconds North and 93 degrees, 15 minutes, 29.2788 degrees West. What is the latitude in decimal form? Round to four decimal places if necessary.

**Expected Answer:**  $44 + (59/60) + (11.9616/3600) = 44.986656$  After rounding, the latitude is 44.9867 degrees North.

2. (5.00 pts)

The location of a city is 30 degrees, 15 minutes, 59.9976 seconds North and 97 degrees, 43 minutes, 59.9880 degrees West. What is the longitude in decimal form? Round to four decimal places if necessary.

**Expected Answer:**  $97 + (43/60) + (59.9880/3600) = 97.73333$  After rounding, the longitude is 97.7333 degrees West.

3. (5.00 pts)

Your destination is 32.2 km away. If your average speed is 40 mph, how many minutes will it take you to reach your destination? Round to one decimal place if necessary.

**Expected Answer:**  $32.2 \text{ km} \times (1 \text{ mile} / 1.609 \text{ km}) \times (1 \text{ hour} / 40 \text{ miles}) \times (60 \text{ minutes} / 1 \text{ hour}) = 30.0 \text{ minutes}$

4. (2.00 pts) If the scale of a map is 1:2400, then 1 cm = 78.74 ft.

True  False

5. (2.00 pts) If the scale of a map is 1:10000, then 1 in = 0.1578 miles.

True  False

6. (1.00 pts) The Mercator projection is an equal-area map.

True  False

7. (1.00 pts) Verbal scales scale with the map.

True  False

8. (1.00 pts) Representative fractions scale with the map.

True  False

9. (1.00 pts) The Public Land Survey System predates the land division method called long-lots.

True  False

10. (1.00 pts) There are 36 sections in a township.

True  False

11. (1.00 pts) Magnetic North differs from Geographic North most of the time.

True  False

12. (1.00 pts) Which ocean borders the western United States?

- A) Atlantic
- B) Indian
- C) Arctic
- D) Pacific

13. (1.00 pts) What is the capital of the United States?

- A) Annapolis, M.D.
- B) Philadelphia, P.A.
- C) New York City, N.Y.
- D) Washington, D.C.

14. (1.00 pts) What is the art of drawing maps called?

- A) Geographic Information Science
- B) Cartography
- C) Geography
- D) Surveying

15. (1.00 pts) If you were planning a hiking trip, which type of map would you want to bring?

- A) Thematic
- B) Topographical
- C) Atlas
- D) Climatic

16. (1.00 pts) What mountain range is found in the eastern United States?

- A) Sierra Nevada
- B) Rocky Mountains
- C) Appalachian Mountains
- D) None of the above

17. (1.00 pts) What major river terminates near New Orleans?

- A) Missouri
- B) Colorado
- C) Rio Grande
- D) Mississippi

18. (1.00 pts) How many states are in the contiguous United States?

- A) 48
- B) 49
- C) 50
- D) 51

19. (1.00 pts) Into which body of water does the Mississippi river terminate?

- A) Pacific Ocean
- B) Atlantic Ocean
- C) Caribbean Sea
- D) Gulf of Mexico

20. (3.00 pts) There are \_\_\_ seconds in a minute, \_\_\_ minutes in a degree, and \_\_\_ seconds in a degree.

21. (1.00 pts) On which common map projection does Antarctica look far more massive than it actually is?

22. (2.00 pts) A pilot is flying at a \_\_\_\_\_ of 240 degrees. They fly back in the exact opposite direction, \_\_\_\_\_ degrees.

23. (1.00 pts) Lines of \_\_\_\_\_ converge at the poles.

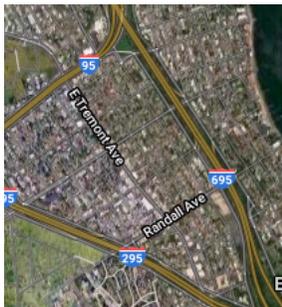
24. (1.00 pts) What is the largest state in the United States?

25. (1.00 pts) What is the smallest state in the United States?

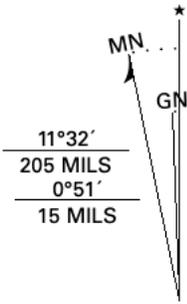
26. (1.00 pts) Soundings are measurements of \_\_\_\_\_.

27. (1.00 pts) Contour lines indicate areas of \_\_\_\_\_ elevation.

28. (1.00 pts) What kind of roads are represented by the numbers 95, 695, and 295?



29. (1.00 pts) What does this image represent?



**Expected Answer:** Magnetic declination; the deviation of magnetic North from true North.

**30. (1.00 pts)** What does this symbol represent?



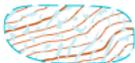
- A) woodland
- B) marshland
- C) scrubland
- D) mangrove

**31. (1.00 pts)** What kind of road does this symbol represent?



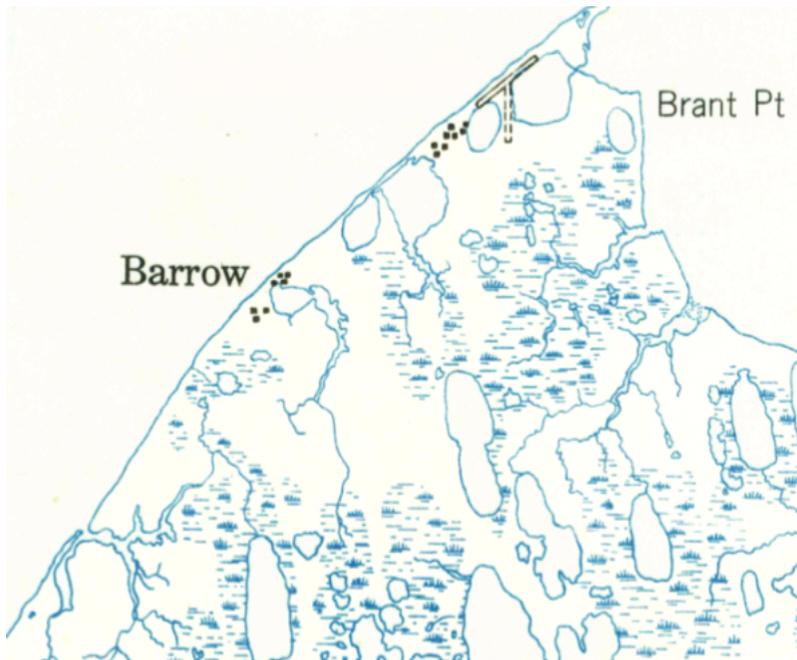
- A) paved
- B) gravel
- C) dirt
- D) unspecified

**32. (1.00 pts)** What does this symbol represent?



- A) dry pond
- B) glacial advance
- C) intermittent lake
- D) glacial retreat

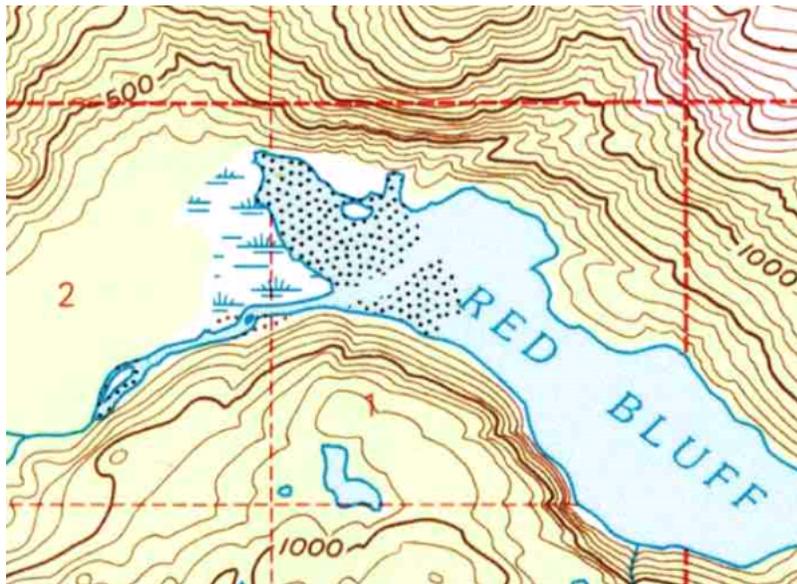
**33. (10.00 pts)** Use the below image to answer the following question.



What can you infer about the topography of this land? Describe the features, manmade and natural, that you can identify.

**Expected Answer:** It is flat marshland with lakes. There are several buildings and an airport with a paved and unpaved landing strip.

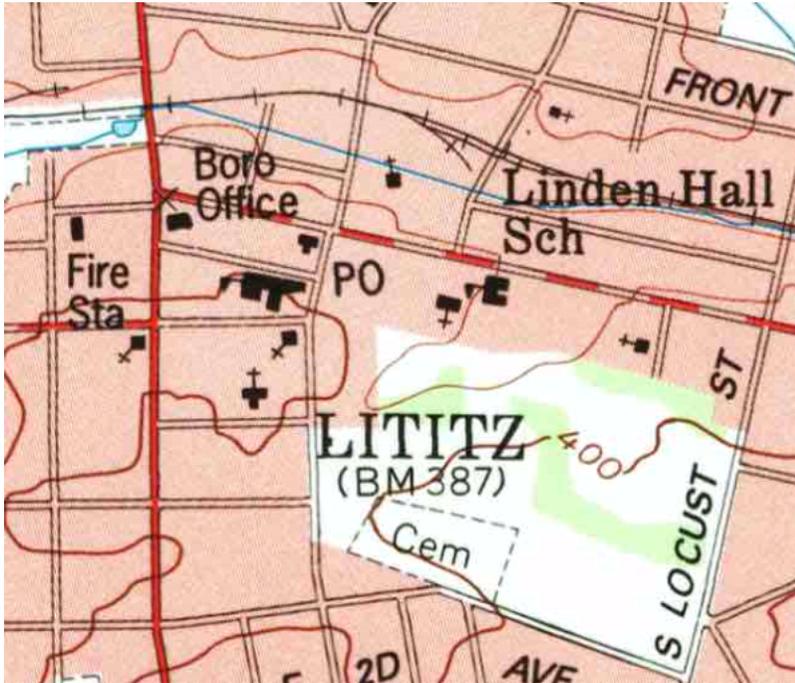
34. (10.00 pts) Use the below image to answer the following question.



Describe the topography of this region. What features do you observe?

**Expected Answer:** There is a lake with a foreshore flat. Adjacent to the foreshore flat is marshland. The rest of the area is woodland. Although the region directly to the west of the marshland is flat, the rest of the area surrounding the lake is very steep.

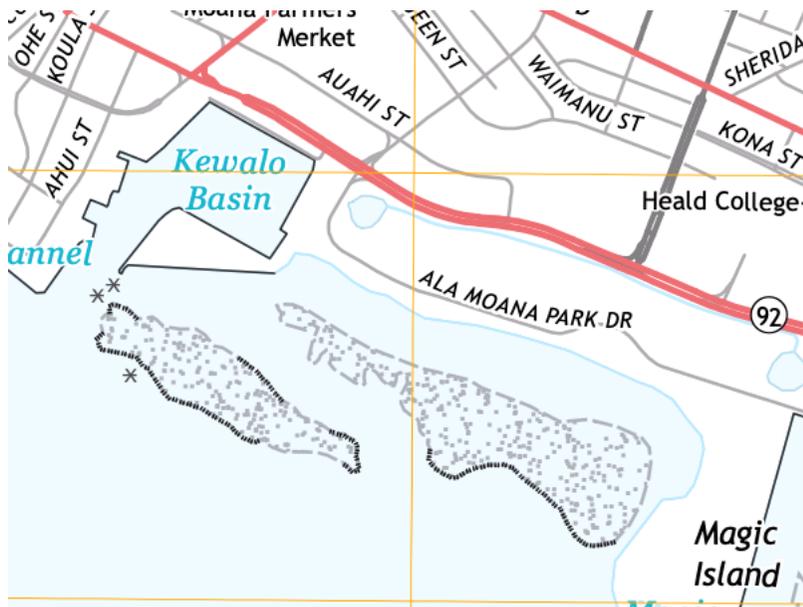
35. (10.00 pts) Use the below image to answer the following question.



Describe the topography of this region. What features can you identify?

Expected Answer:

36. (10.00 pts) Use the below image to answer the following question.



Describe the topography of the region. What features can you identify?

**Expected Answer:**

**37. (5.00 pts)** What are five important features of a "good" map?

**Expected Answer:** legend/key, title, data source, scale, north arrow/latitude & longitude lines

**38. (10.00 pts)** Describe how to draw a topographic profile, given a topographic map.

**Expected Answer:** Draw a horizontal line across the region of interest. Determine the contour spacing and how many lines you will need (corresponding to how many contour lines there are). Using a ruler, draw from the contour line down to the corresponding horizontal line. After this has been done for all of the contour lines that are along the drawn horizontal line, connect the ends of the lines to see the profile.

**39. (10.00 pts)**

The peak of a mountain is at an elevation of 5400 ft. If the base of the mountain is at an elevation of 100 ft and the straight line horizontal distance between the base and the peak is 0.20 miles, what is the gradient? Round to two decimal places if necessary.

**Expected Answer:** The gradient is equal to the slope.  $m = (y_2 - y_1) / (x_2 - x_1) = (5400 \text{ ft} - 100 \text{ ft}) / (x_2 - x_1)$  We know  $x_2 - x_1$  is 0.20 miles. In feet this is 1056 ft.  $m = 5.019$  Round this to two decimal places. The gradient is 5.02.

40. (5.00 pts) Around what time was this satellite picture acquired?



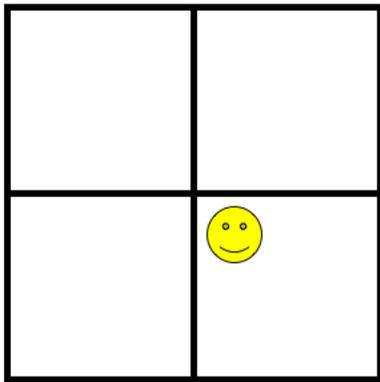
**Expected Answer:** Around 10:00-11:00 AM. After 9:00 AM but before noon.

41. (1.00 pts) What land division system was used here?



Expected Answer: long lots

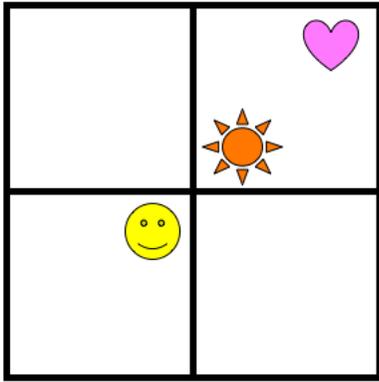
42. (5.00 pts) Describe the location of the smiley-face in terms of the PLSS. Be specific.



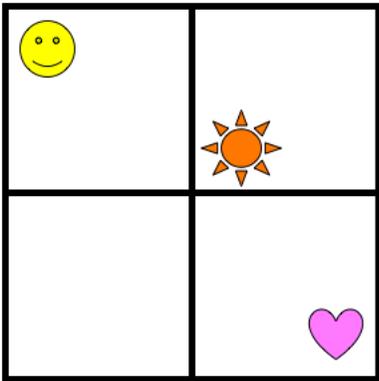
Expected Answer: NW1/4 SE 1/4

43. (5.00 pts) Consider the following "maps". Choose the map that has the heart in the NE1/4 NE1/4, the smiley-face in the NE1/4 SE1/4, and the sun in the SE1/4 NE1/4.

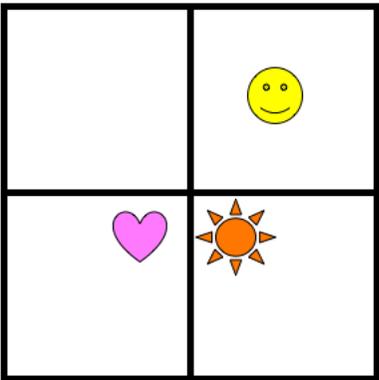
Map 1



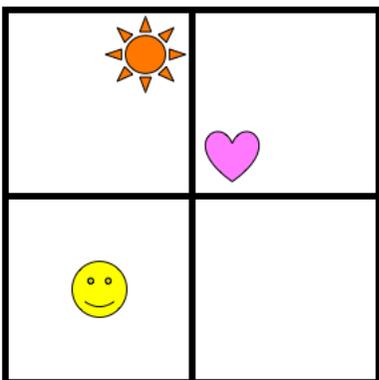
Map 2



Map 3

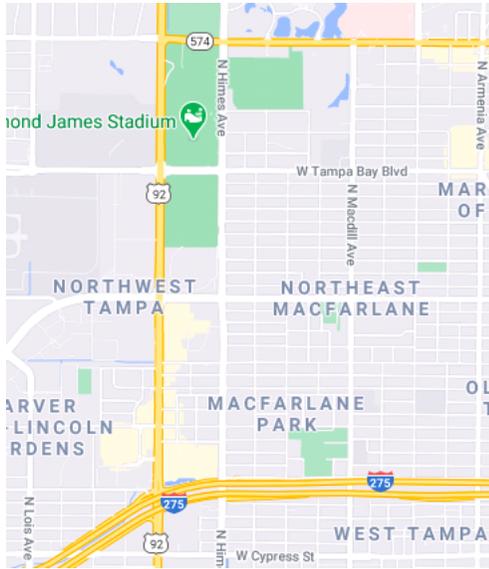


Map 4



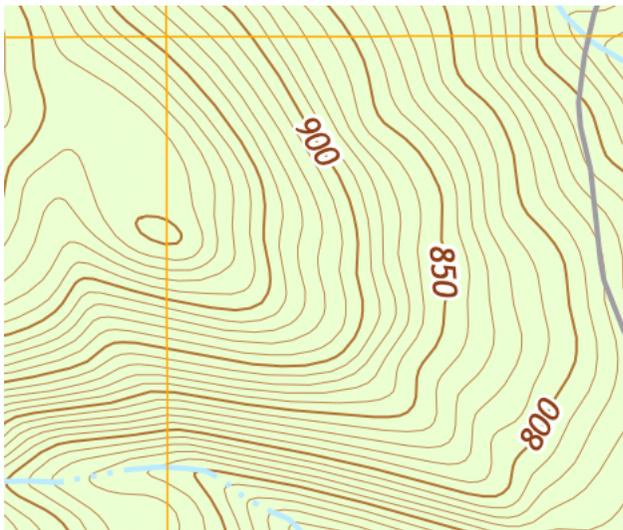
- A) Map 1
- B) Map 2
- C) Map 3
- D) Map 4

44. (2.00 pts) What kind of road is represented by the numbers "574"?



Expected Answer:

45. (8.00 pts) What is: the contour interval, the lowest elevation, and the highest elevation? What kind of feature is this?



Expected Answer:

