INTRODUCTION TO AERONAUTICAL CHARTS

UNDERSTANDING AND USING VFR CHARTS

OBJECTIVE

Understand VFR aeronautical charts, their symbology and meaning, and the impact to flight planning and execution.

QUESTIONS

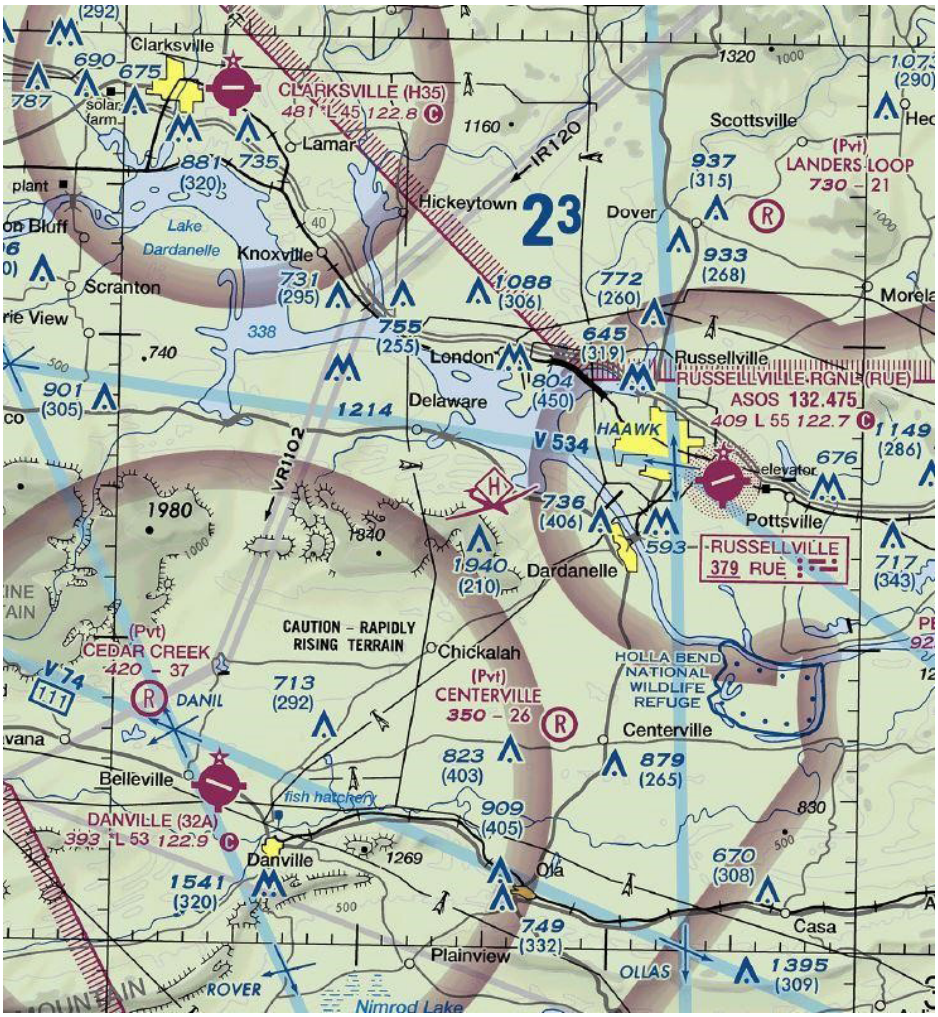
1. What is the name for the detailed chart the FAA creates for the areas around select major airports?
   a. Terminal Area Chart
   b. Low Altitude Chart
   c. Chart Supplement
   d. Terminal Procedures Chart

2. In the 1980s, an airport in California was designated as a possible emergency landing site for the Space Shuttle because it had a very long runway: 15,000 feet. How would this airport be depicted on a VFR sectional?
   a. Open magenta circle
   b. Blue circle with tick marks
   c. Rectangular outline of the runway, oriented to the runway direction

3. The Class D airspace surrounding an airport with a control tower is represented by what color and line?
   a. Solid magenta line
   b. Dashed blue line
   c. Solid blue line

4. What primary resources does the FAA provide to explain symbols on VFR sectional charts? Select all that apply.
   a. Terminal Area Chart
   b. The chart's legend
   c. FAA Aeronautical Chart User's Guide
   d. Flight Service

Reference the following figure for the next two questions:



Editorial credit: FAA Sectional Chart

5. You're beginning your planning for a flight through this area. Based on the figure provided, what's the minimum altitude you could fly in the region without being in danger of hitting an obstacle or obstruction?
   a. 2,300 feet AGL
   b. 1,980 feet AGL
   c. 2,300 feet MSL
   d. 1,980 feet MSL

6. You are flying a business jet, and you want to land on a runway that is at least 5,400 feet long. Based on the figure provided, at which of the three public airports shown will you land? Why?

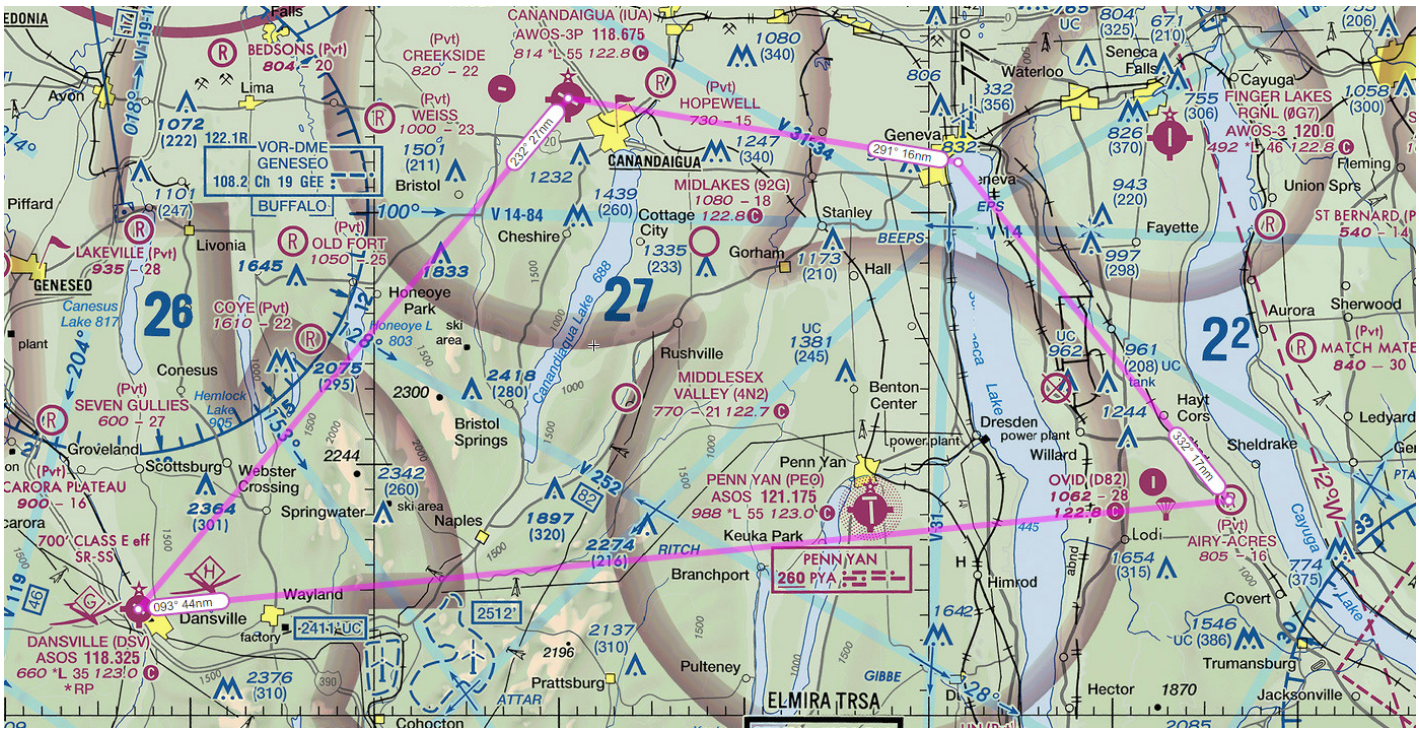
   Of the three, Russellville Regional (RUE) is the only one with a runway longer than 5,400 feet. The data blocks for the airports show Russellville has 5,500 feet, while Clarksville has 4,500 feet, and Danville 5,300 feet.

7. As you move north away from the Equator, the degrees of latitude increase, from 0 degrees at the Equator to 90 degrees at the North Pole. As you move west, starting at the east coast of the United States and moving to the west coast, do the degrees of longitude increase or decrease? Explain.

   The Prime Meridian at Greenwich, England, is the 0 degree longitude line. Moving west from that point to the U.S., and on to the west coast, would have increasing degrees of longitude until you finally reached the International Date Line, or the 180 degree longitude line. At that point, as you continued to move west, the degrees of longitude would decrease until you reached the Prime Meridian again.

SCENARIO: PLANNING A FLIGHT

It's a warm, sunny day, and you decide to take advantage of the weather by flying to visit some friends who live near local airports. Your flight will have three legs, and you begin the planning process by plotting each leg on a sectional chart. Answer the following questions about things you might consider while planning the flight.



Editorial credit: FAA Sectional Chart

8. The flight will begin near your home at Airy-Acres, and the first leg of the trip will be northwest. Why is this airport depicted on the chart as a circle with an R in it?

   As identified by the sectional chart legend, this symbol is an airport that is "non-public having emergency or landmark value." The Chart User's Guide explains that the R-in-a-circle symbol signifies a "restricted or private" airport with a soft-surfaced runway, or a hard-surfaced runway less than 1,500 feet long. Because the runway length at Airy Acres is 1,600 feet long (indicated by "16" after the elevation of 805 feet), this is probably a grass (turf) runway.

9. You note that Ovid Airport (D82), nearby and to the northwest, will be a good landmark along your route of flight. What potential flight hazard is there and how might you determine if it will be an issue during your flight?

   Because of the parachute icon printed southeast of the airport circle, you know that there may be parachute jumping activity in the vicinity. To determine whether parachuting is underway during your flight, you would monitor the CTAF at Ovid (D82), which is identified as 122.8 on the sectional chart.

   Some students may answer that a preflight briefing may include a NOTAM indicating that parachute jumping operations will be conducted during the time of the planned flight.

   It is possible that a student may state that the towers (1,244 feet, 961 feet, and 962 feet) may be potential flight hazards, but they are not as closely associated with Ovid as the parachute jumping symbol.

10. You decide to use a populated area as an easy-to-find checkpoint at the north end of Seneca Lake. When over this area, you will change course and head directly to Canandaigua (IUA). What is the name of the city over which you will be turning, and are there any obstructions in the area?

    The town is Geneva, and there are windmills and towers at the north end of the lake.

11. As you plan your flight, you realize you will have enough fuel (including a reserve for safety) to reach Canandaigua, but not to reach the next leg's destination of Dansville (DSV). Is this okay, or will you need to add an additional airport to your flight at which to refuel? How do you know this?

    This is okay; the tick marks around the Canandaigua airport symbol indicate that fuel is available at the airport.

12. As you near Canandaigua Airport, what landmark would make a good point to reference when making a radio call on the CTAF? Why?

    The city of Canandaigua would be a good landmark to reference. You know this because it contains a flag on the sectional chart, which indicates that the city is a VFR checkpoint that can be referenced in radio calls, which would be made on the CTAF: 122.8 MHz.

    The 118.675 frequency is what pilots would use to obtain an automated weather observation from a station on the field.

13. After lunching with a friend in Canandaigua, you begin flying southwest toward Dansville (DSV) to visit a second friend. As you approach Dansville, what kind(s) of activity should you be aware of?

    As you approach Dansville, you should be aware that there may be both gliding and hang gliding activity. You know this because there are two glider symbols located near the airport: one with a "G" inside a diamond, and one with an "H."

14. Near the end of the day, you decide to fly back home to Airy-Acres. What altitude would be a safe choice for the journey back? Why?

The tallest obstacles along the route on the way back appear to be windmills in wind farms. One wind farm has an altitude of "2,411 feet UC," which means either that windmills are under construction or that the altitude of the tallest windmill is uncertain. Either way, a pilot will want to err on the side of caution when choosing an altitude. Another nearby wind farm has an altitude of 2,512 feet. To be safe, you will want to choose an altitude of at least 2,600 feet.

We would like to see students choose an altitude of 2,700 feet or above, either for an additional safety margin or because this is the number noted as the maximum elevation figure (MEF) within that quadrant of the chart.

15. It's not certain whether or not you'll be able to make the return trip prior to it getting dark. Is this a problem? Why or why not?

Yes, not getting back before dark would be a problem. This is because there is no "L" under the Airy-Acres Airport symbol, meaning that the airport is unlit. Students may note that if they did arrive after dark, they could divert to a different airport with lighting (e.g., Penn Yan).