Problem #1:

On the aeronautical sectional provided—it is a 1992 outdated sectional, but many of the features are still identifiable on a modern chart—print out and draw the exact route taken during the VFR (Visual Flight Rules) cross country as specified by each leg (segment) on the flight plan. Note: In this context a “cross country” flight is not across the country, rather, it is an extended flight from and back to the pilot’s home airport. The various fields used on the flight plan are identified as follows:

FROM: Beginning of current leg
TO: End of current leg
ROUTE/ALT: altitude of leg
MC/MH: magnetic compass/heading
LEG/R’MAIN: distance of current leg/remaining distance to destination
IDENT: Transponder code
FREQ: control tower frequency; Note: The old sectional included with this lab shows a 123.0 control tower frequency for AHN. The frequency actually used was 126.3.
NAME: name of intersection on the flight plan
IDENT/RAD: VOR or VORTAC identifier and radial information. Note: The radial information shows a “T” (TO) or an “F” (FROM) above the radial bearings recorded.
FREQ: VOR or VORTAC frequency
TRUE/MAG: direction of the winds aloft
SPD/TEMP: speed and temperature of the winds aloft
EST/ACT: estimated True Air Speed (TAS); actual TAS
EST/ACT: wind correction angle (WCA) estimated and actual
EST/ACT: magnetic heading (MH) estimated and actual
EST/ACT: ground speed (GS) estimated and actual
ETE/ACT: estimated time enroute (ETE) and actual time enroute
ETA/ATA: estimated time of arrival (ETA) and actual time of arrival
Note: Simple Navigational Equations

True Course (TC) +/- Wind Correction Angle (WCA) = True Heading (TH)

True Heading (TH) +/- Magnetic Variation (MV) = Magnetic Heading (MH); Note: MV is the difference between magnetic and true north

Magnetic Heading (MH) +/- Compass Deviation (DEV) = Compass Heading (CH)

Determine and plot the following:

1) The total roundtrip time for the entire cross country flight
2) The number of nautical miles for each major leg (one page of flight plan per leg) and the number of nautical miles for the entire cross country flight
3) Plot the exact route for the entire trip on the 2-piece section map provided. Note: the “west” sectional should be placed immediately to the left of the “east” sectional in order to see the entire cross country route. Hint: Line up the longitude lines
4) Clearly mark the following items on your plot: VOR routes used; control towers communicated with; orientation of aircraft (use stick figure) on major legs of the cross country flight; major landmarks spotted by the pilot.
5) Using the distance scale of the map show that your distance calculation in procedure #2 was accurate. If it was off by greater than 10%, then please explain what could have been wrong.

Useful URLs:

i)  https://www.faa.gov/air_traffic/flight_info/aeronav/digital_products/aero_guide/media/Chart_Users_Guide_12thEd.pdf - pages 6 through 10 are useful to learn about the map symbols
ii)  http://skyvector.com/ - The SkyVector sectionals are usual to clarify details; Note: Do not use a screen shot of the SkyVector sectionals. They can be purchased, but copyright law must be followed.

Turn in: Your report must include all of the aforementioned components in a neat and stapled format.