PHYS 311 STELLAR ASTROPHYSICS
Lab #2 (16 SEP 11)

My star is HD _____. It's Yale Bright Star Catalog # is HR _____. Other common names include _____.

It's RA is _____ ^{h} ____ ^{m} and its Dec is _____ ^{o} _____ '. Given this position, it is on the meridian at midnight on _____ (approximate date). Use what you know about the celestial coordinate system to determine the following... When it is on the meridian (which happens once a day), it is _____ ^{o} above the southern horizon when viewed from our observatory at St. Thomas, USVI (latitude = 18^{o} N). You might want to use a planetarium program to double check your results.

It's measured parallax is _____ ", so it's distance is _____ pc or _____ cm.

Given it's (B-V) color of _____, and using the tables in Allen's *Astrophysical Quantities 4th Edition* (or the figures in the lecture notes), it's approximate effective Temperature is _____ K.

With this effective temperature, I can use Wien's Law to predict that the star should be brightest at a wavelength of _____ Å.

From the (B-V) color, I can also use Astrophysical Quantities or the lecture notes to determine a Bolometric Correction of _____ magnitudes. Adding this to the absolute visual magnitude of _____ gives a bolometric absolute magnitude of _____. Comparing this value to that for the Sun (M_V=4.76; don't forget to apply the bolometric corretion for the Sun as well), I conclude that the Luminosity of my star is _____ times the Solar Luminosity. Since the solar luminosity is 4E33 erg/s, this makes the Luminosity of my star _____ erg/s.

If the temperature of my star is that given by its (B-V) color, I can use Stephan's Law and the total luminosity to predict it's radius to be _____ cm. Show your work...

The Spectral Type is _____, and the luminosity class is _____. Does this seem to be consistent with your measured Temperature and Radius?

Vega

Altair

Deneb

Polaris

Sirius

Betelgeuse

Spica

Alpha Centauri

Fomalhaut