Spring Physics of Astronomy– Quiz on Ch.25 - 25.May.2004

name _____

1. Name three techniques for finding astronomical distances, and their maximum range.

(a)

(b)

(c)

2. What is unique about Cepheids? (No equations required, in this problem.)

(a) How does Luminosity relate to Mass, for an average star?

(b) Which pulse faster, high-mass or low-mass Cepheids?

(c) How does the average Luminosity of a Cepheid relate to its Period?

(d) Describe how Cepheids can serve as standard candles:

3. Sketch the Hubble relation (on back)**. Label both axes.**

(a) What does the slope of the Hubble diagram represent, physically?

(b) If H = 70 km/s/Mpc, include a few data points on your plot that would fit this value.

(c) If a galaxy has a redshift of z=0.1, estimate its speed.

(d) Use your Hubble diagram to find the distance to this galaxy.

(e) Use your Hubble diagram to find the age of the universe.

(f) Has the Hubble constant had a fixed value in time? How does this affect your answer for the age of the universe?