CSCI 3302

Homework 3

1. If c is assumed to be constant at the speed of light, then x is wholly determined by delta t, or the difference in time between emitting and receiving the signal. A larger delta t means there was a larger difference in time, which directly equates to a larger x, which is a larger distance. A smaller change in t equates to a smaller distance. Delta t and x are proportional to one another.
2. V = r * phi. Law of variance says that if the variance of a random variable is the same as sigma, that variable, say x, is alpha*x which equals alpha^2 * sigma. Error propagation shows that sigma(v)= sigma(phi)*r^2.

$$\sigma_y^2 = \frac{\partial df}{\partial x}^2 \sigma_x^2$$

3.
    a. p(marker|reading)=p(reading|marker)*p(marker)/p(reading)
    b. 90%
    c. Yes.