Math 1513 - College Algebra

Written Assignment 2 - Due 2014.08.31

Directions: Please answer the following question in complete sentences. Be sure to label all geometric objects in any illustrations. I will accept an answer in a scanned image format, as a pdf, or sent from your awesome picture phone.

Question: Due to the work of Albert Einstein and other physicists who labored on space-time relationships, it is known that the faster an object moves the shorter it appears to become. This phenomenon is modeled by the *Lorenz Transformation*

$$L = L_0\sqrt{1 - \left(\frac{v}{c}\right)^2},$$

where L_0 is the length of the object at rest, L is the relative length when the object is moving at velocity v, and c is the speed of light. Factor the radicand and use the result to determine the relative length of a domestic shorthair cat of length 18 inches if it is shot past a stationary observer at 0.75 times the speed of light.