Math 1513 - College Algebra
Written Assignment 8 - Due 2017.10.15

Directions: Please answer the following question in complete sentences and show ALL work. 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. Do NOT send a Microsoft Word document.

Question: The surface area of a star goes through an expansion phase prior to going *supernova*. As the star begins expanding, the radius becomes a nonconstant function of time. Suppose the function is $r(t) = 1.36\,t + .002$, where t is in days and the radius r is measured in gigameters (Gm).

(a) Find the radius of the star three days after the expansion phase begins.

(b) Find the surface area of the star after three days.

(c) Express the surface area as a function of time by finding $h(t) = (S \circ r)(t)$.

(d) Use $h(t)$ to compute the surface area after three days directly. Does it agree with your answer from part (b)?