

Math 1513 - College Algebra

Written Assignment 4 - Due 2011.07.02

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, in a Word document or as a pdf.

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 $r(t) = 1.05t$, where t is in days and the radius r is measured in gigameters (Gm).

- (a) Find the radius of the star two days after the expansion phase begins.
- (b) Find the surface area of the star after two 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 two days directly. Does it agree with your answer from part (b)?