Homework IX
Math 113

Homework is due on Nov 26, 2008.

ex.1. (i) Read Chapter 13- Problem 24 (In this problem we consider the graph of a function in polar co-ordinates...). Solve Chapter 19 - Problem 27 (i) (For each of the following functions, find the area bounded by the graphs in polar co-ordinates...)

(ii) Read Appendix to Chapter 19 pages 402-404. Solve page 404 Problem 1(i) (Find the volume of the solid obtained by revolving the region... \( f(x) = x \) and \( f(x) = x^2 \)) and also solve page 404 Problem 2 (Find the volume of a sphere of a radius \( r \).)

ex.2. Read pages 376-381 (trignometric functions...). Solve the following integrals.

(i) \[
\int \frac{dx}{x \sqrt{x^2 - 1}}
\]

(ii) \[
\int \sec^3 x \, dx
\]

(iii) \[
\int \frac{e^{\sqrt{x}}}{\sqrt{x}} \, dx
\]

(iv) \[
\int \frac{x^3 + x + 2}{x^4 + 2x^2 + 1} \, dx
\]

(v) \[
\int \log \sqrt{1 + x^2} \, dx
\]