8.4b Improper Integrals

Comparison Test

if $0 \le f(x) \le g(x)$

and $\int_a^\infty f(x)dx \le \int_a^\infty g(x)dx$

$$\int_a^\infty f(x)dx \le \int_a^\infty g(x)dx$$

Feb 1-3:26 PM

$$\int_1^\infty e^{-x^2}\,dx$$

Feb 1-3:28 PM

Does the integral converge or diverge?

$$\int_1^{\infty} \frac{dx}{x^5+1}$$

Feb 1-3:29 PM

Find the volume of the solid obtained by revolving the curve about the x-axis: $y = xe^{-x} \qquad 0 \le x < \infty$

Feb 6-3:56 PM

Gabriel's Horn

Consider the region R in the fist quadrant bounded above by: $y = \frac{1}{x}$ and on the left by $x = 1$

The region is revolved around the x-axis.

a. show the R has infinite area.

b. Find the volume of the solid.

Feb 6-4:03 PM