

Weekly Assignment 2

1. Function analysis

Let $f(x) = e^{2x} - 3x$.

- a. Find an equation for the tangent line to $y = f(x)$ when $x = 0$.
 - b. Find any critical numbers for $f(x)$ and determine if each produces a local maximum point, a local minimum point, or neither. Show your work (other than pointing to a graph) in determining this information.
-

2. Area and Volume

Let R be the region in the plane bounded by $y = \frac{1}{x}$, $y = \frac{1}{\sqrt{x}}$, and $x = 4$.

- a. Sketch the planar region.
- b. Find the area of R .
- c. Find the volume of the solid of revolution obtained by rotating R about the x axis.