MT222: Calculus II

Miraj Samarakkody

Tougaloo College

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Problem 4

Use the washer or cylindrical shell method to find the volume of the solid obtained by rotating the region bounded by the curves $y^2 = x$ and $x = 2y$ about the $y-$axis.

Problem 5

Find the average value of the following function on the interval $[-1, 1]$.

$$f(x) = \frac{x^2}{(x^3 + 3)^2}$$

Problem 6

Evaluate the following integral using integration by parts.

$$\int t^2 \sin \beta t \; dt,$$

where β is a constant.