WORKSHEET 20

MATH 101

Fulbright University, Ho Chi Minh City, Vietnam

Cylindrical Shell

Problem 1 (name of the problem). Define R as the region bounded above by the graph of the function $f(x) = \sqrt{x}$ and below by the graph of the function $g(x) = \frac{1}{x}$ over the interval $[1, 4]$. Find the volume of the solid of revolution generated by revolving R around the y-axis.

Problem 2. Use any method you learn to evaluate the volume

(1) of the solid rotated around the y-axis, bounded between the following curves

$$x = \sqrt{9 - y^2}\,, x = e^{-y}\,, y = 3$$

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(2) of the solid rotated around the y-axis bounded by the following curves

$$y = \sin^2 x \, , x = 0 \, , x = \sqrt{\pi}$$