Math 102 - Quiz#3

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Name:

ID No.: Serial No.:

1. Set up **(do not evaluate)** the integral for the volume of the solid of revolution generated by rotating the region enclosed by the graph of $y^2 = x + 1$ and $x = 0$ around the $y = -2$. (using cylindercial shells)

2. Find the average value of the function $f(x) = 45 - 10\cos\left(\frac{\pi x}{12}\right)$ over the interval [0, 24].

3. Find $\int \frac{\sqrt{\csc x}}{\sec^3 x}\, dx$

4. Find $\int \sin x \ln(\sin x)\, dx$

5. Evaluate $\int \csc^3 x\, dx$ Hint ( you can use $\int \csc x\, dx = \ln|\csc x - \cot x| + c$ )