

EXAM 1 - MATH 152

Friday, September 22

YOUR NAME: _____

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Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Compute the area of the region enclosed by the graphs of $f(x) = x^3 + x$ and $g(x) = 2x$. Please, show all steps.

2. Consider the solid whose floor is the region bounded by $x = 4 - y^2$ in the first quadrant and whose cross-sections perpendicular to the y -axis are squares. Find the volume of this solid.

3. Find the volume of the solid resulting by rotating the region under the graphs of $y = \cos x$, $0 \leq x \leq \frac{\pi}{2}$, around the y -axis.

4. Compute the integral $\int x^{-6} \ln x dx$.

5. Compute the integral $\int \tan^3 x \sec^7 x dx$.