EXAM 1 - MATH 152 Friday, September 20

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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. Find the area of the region enclosed by the graphs of $f(x) = x^2 + 10x$ and $g(x) = 2x - 7$.

2. Consider the solid whose floor is the region under $y = \sin x$ over $[0, \pi]$ and whose cross sections perpendicular to the x-axis are squares. Find the volume of this solid.

3. Find the volume of the solid resulting by revolving the region under $y = x^3 + 1$ over $[0, 2]$ around the line $y = -1$.

4. Find the volume of the solid resulting by revolving the region enclosed by $y = -x^2 + 4x$ and $y = 0$ around the y-axis.

5. Compute the following integrals

$$\int xe^{\frac{1}{5}x}dx =$$

$$\int \frac{\ln x}{x^7}dx =$$