TMATH 125 Quiz 3

Show *all* your work (numerically, algebraically, or geometrically) for each and simplify. No credit is given without supporting work.
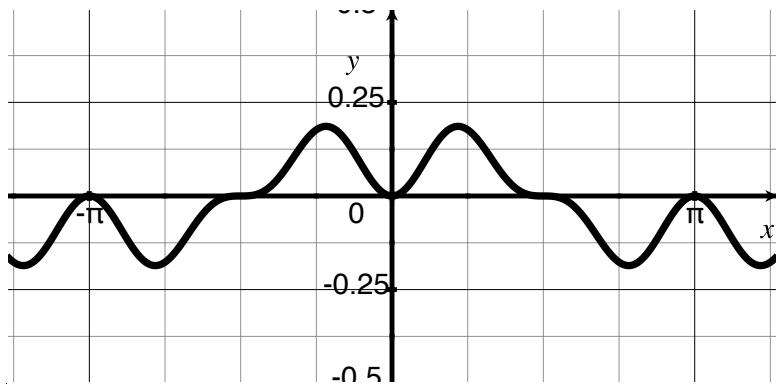
1. [3] (ip wks #2) Find $\displaystyle\int_0^1 5^t \sin(5^t)\, dt$.

2. [3] (§7.1 #64) Consider the region bounded by the curves $y = \ln(x)$, $y = 0$, and $x = e$. Set up the integral (but do *not* integrate) that is used to find the volume of the solid generated by rotating this region about the x-axis.

3. [2] (WebHW9 #6) Find $\displaystyle\int 4\tan(x)\sec^3(x)\,dx$.

4. Consider $f(x) = \sin^2(x)\cos^3(x)$ shown on the right.

   (a) [1] (§7.2 #55) Set up the integral (but do *not* to find the average value of the function on the interval $[-\pi, \pi]$.

   (b) [1] Use the graph and the definition of average value to find the average value of f on the interval $[-\pi, \pi]$.

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