

Math 2260 HW #7
Due 10:10 AM Friday, February 24

Reading: Hass §8.3–8.4

Problems: Do the assignment “HW7” on WebWork. In addition, write up solutions to the following problems and hand in your solutions in class on Friday.

1. (a) Use integration by parts to show that

$$\int (\ln x)^n dx = x(\ln x)^n - n \int (\ln x)^{n-1} dx.$$

- (b) Use part (a) to evaluate the integral

$$\int (\ln x)^2 dx.$$

2. Find the area of the region between the x -axis and the curve $y = \sqrt{1 + \cos(4x)}$ for $0 \leq x \leq \pi$.
(*Careful! Remember that $\sqrt{f(x)^2} = |f(x)|$.*)
3. Evaluate the indefinite integral

$$\int \frac{dx}{x^2 \sqrt{x^2 + 1}}.$$