

## Math 133, Quiz #5

1. Compute the integral

$$\int x^2 \ln x \, dx.$$

2. Compute the following limit if it exists

$$\lim_{x \rightarrow \infty} \frac{(\ln x)^2}{\sqrt[3]{x}}$$

3. Write the functions  $\sinh x$  and  $\cosh x$  in terms of the exponential function.  
Then evaluate  $\cosh^2 x - \sinh^2 x$ .