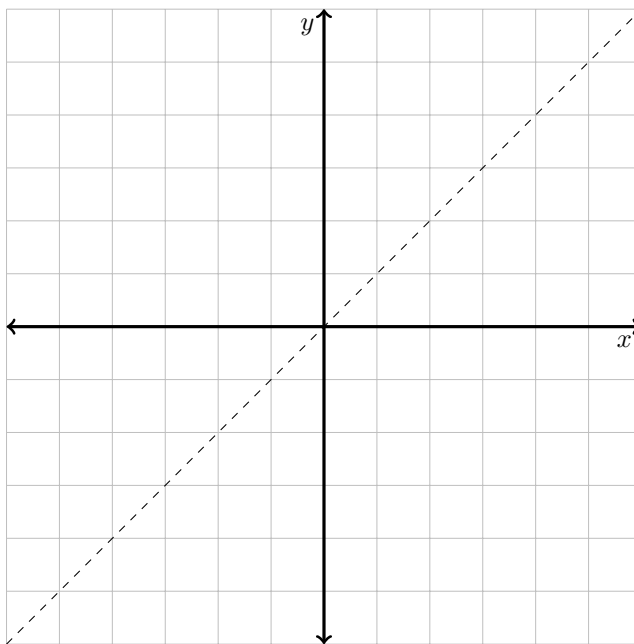**1.** Evaluate the indefinite integral $\int \dfrac{1}{x \ln x}\,dx$.

2. Use logarithmic differentiation to diffrentiate $y = \sqrt[4]{\dfrac{x^2 + 1}{x^2 - 1}}$.

The natural logarithm function is one-to-one, hence it has an inverse. That inverse is called the natural exponential function (which we'll spend more time with tomorrow) and is denoted e^x. The definition of inverse function means that $\boxed{e^x = y \iff \ln y = x}$.

3. Sketch the curve $y = \ln x$ and then use the fact that the $y = e^x$ is the reflection of $y = \ln x$ through $y = x$ to sketch the curve $y = e^x$.

4. Calculate $\dfrac{d}{dx}[e^x]$. Hint: use either implicit differentiation or the formula for calculating derivatives of inverses.

5. Evaluate the indefinite integral $\displaystyle\int e^x dx$.