Show all work, clearly and legibly, to receive full credit. Correct spelling, organization of your solution, and proper use of mathematical notation all count. You may use a calculator, but no notes, books, or other resources. Good luck!

1.) (4 pts.) Use implicit differentiation to compute \( \frac{dy}{dx} \) for the equation \( 3x^2 = \ln(\ln y) \). Be sure to solve for \( \frac{dy}{dx} \).

\[
\ln x = \frac{1}{\ln y} \cdot \frac{1}{y} \cdot \frac{dy}{dx}
\]

\[
\frac{dy}{dx} = \ln x \ln y
\]

2.) (4 pts.) Use a reference triangle to write \( \cos(\arcsin x) \) in algebraic terms, that is, without any trigonometric functions.

\[
\cos y = \frac{\sqrt{1-x^2}}{1}
\]

3.) (2 pts.) Use rules of logarithms to rewrite \( \log 3 - \log 2 \) as a single logarithm. \( \log \frac{3}{2} \)