

You have 20 minutes to take this quiz. Each problem will be graded for clarity of work as well as correctness, so show all work **clearly and in order**. Circle or otherwise indicate your final answers. Please note that there are problems on both the front and the back of this page.

1. (0 points) [Similar to #11, 7.3]

Given that $f(x) = \frac{1}{\ln x}$,

(a) Determine the domain of $f(x)$.

(b) Find $f'(x)$.

2. (0 points) [Similar to #12, 7.2]

Given that $0 < x < 1$, express the area under the curve $y = \frac{1}{t}$ from $t = x$ to $t = 1$ as a logarithm.

Turn over for more...

3. (0 points) [Similar to #34, 7.3]

Find $\int \frac{\sin(\ln x)}{x} dx$.

4. (0 points) [Similar to #25, 7.1]

Given that $f(x) = \frac{x+2}{x-1}$,

(a) Show that $f(x)$ is one-to-one. (Hint: Use $f'(x)$.)

(b) Find $f^{-1}(x)$.