MATH 1920.004
Exam 2 **Name:**
Given 10/14/20
Due by 9/15/20 at 7:30 p.m.

Directions: Please provide solutions to the following problems on separate sheets of paper. Place only one solution per page and clearly number your work. Answer questions thoroughly by writing clearly and showing sufficient intermediate steps. Do not give decimal approximations unless requested to do so.

1. Find the antiderivative $\int t^4 \ln(t)\ \mathrm{d}t$.
2. Find the antiderivative $\int \frac{\tan^4(x)}{\sec^3(x)}\ \mathrm{d}x$.
3. Find the exact arc length of $y = u^2 + 3u - 4$ over the interval $0 \leq u \leq 1$.
4. Find the exact value of $\int_0^7 \frac{1}{\sqrt{7-x}}\ \mathrm{d}x$.

(Possibly) Useful Formulae:

1. $\int \sec(u)du = \ln|\sec(u) + \tan(u)| + C$
2. $\int \csc(u)du = -\ln|\csc(u) + \cot(u)| + C$
3. $\int \sec^3(u)du = \frac{1}{2}\left[\sec(u)\tan(u) + \ln|\sec(u) + \tan(u)|\right] + C$