Instructions. This quiz will be graded for accuracy, out of 10 points. Calculators, books, notes and suchlike aides to gracious living are not permitted. Make sure to show all your work for full credit.

1. Set up, BUT DO NOT EVALUATE, an integral which calculates the area enclosed by the given functions. Integrate with respect to y. (i.e. set up a “dy” integral).

\[ y = 4 \ln(x) \]
\[ y = 0 \]
\[ y = 2 \]
\[ y = x + 1 \]
2. Let \( R \) be the finite region bounded by the graphs of the following equations.

\[
y = \frac{100}{x^2} \quad y = 25 \quad x = 5
\]

Set up, BUT DO NOT EVALUATE, an integral which calculates the volume of a solid with base \( R \) whose vertical cross-sections are equilateral triangles.

(Hint: The area of an equilateral triangle is \( \frac{\sqrt{3}}{4} s^2 \) where \( s \) represents the side of the equilateral triangle)