Logs and Exponents

a) Prove that for $x > 1$:

$$a \int_{1/x}^{1} \frac{1}{t}\, dt = \int_{(1/x)^a}^{1} \frac{1}{t}\, dt.$$

b) Assume $x > 1$. What is the geometric interpretation of the result of part a?

c) What does this tell you about the area between the x-axis and the graph of $\frac{1}{x}$ over the interval from 0 to 1?

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