

Quiz**Name**

Consider the function $f(x) = \frac{1}{x^2}$ with $x > 0$ and its graph.

1. Show that the area A under the graph and above the interval $[1, \infty)$ of the x -axis is finite even though it has infinite extent. In fact show that $A = \lim_{c \rightarrow +\infty} \int_1^c \frac{1}{x^2} dx = 1$.

2. Show that the area of infinite extent under the graph and above the interval $(0, 1]$ given by the improper integral $\lim_{c \rightarrow 0} \int_c^1 \frac{1}{x^2} dx$ is infinite.