

1. $\int_0^1 \frac{1}{x^2} dx = \lim_{\epsilon \rightarrow 0^+} \int_\epsilon^1 \frac{1}{x^2} dx = \lim_{\epsilon \rightarrow 0^+} \left[-\frac{1}{x} \right]_\epsilon^1 = \lim_{\epsilon \rightarrow 0^+} \left(-1 + \frac{1}{\epsilon} \right) = \infty$
2. $\int_0^1 \frac{1}{x} dx = \lim_{\epsilon \rightarrow 0^+} \int_\epsilon^1 \frac{1}{x} dx = \lim_{\epsilon \rightarrow 0^+} \left[\ln x \right]_\epsilon^1 = \lim_{\epsilon \rightarrow 0^+} \left(0 - \ln \epsilon \right) = \infty$

