

$$\begin{aligned} \int_0^1 \frac{69}{x^5} dx &= \lim_{t \rightarrow 0^+} \int_t^1 69x^{-5} dx = \lim_{t \rightarrow 0^+} \left[-\frac{69}{4x^4} \right]_t^1 \\ &= -\frac{69}{4} \lim_{t \rightarrow 0^+} \left(1 - \frac{1}{t^4} \right) = \infty. \quad \text{Divergent} \end{aligned}$$