

Problem statement a) Compute $\int_1^2 \frac{dx}{x^2}$.

b) Compute $\int_1^2 \frac{dx}{x(x-m)}$ if m is a small positive number. What happens when $m \rightarrow 0^+$?

c) Compute $\int_1^2 \frac{1}{x^2+n} dx$ if n is a small positive number. What happens when $n \rightarrow 0^+$?

d) Sketch a graph of $\frac{1}{x^2}$, $\frac{1}{x(x-m)}$, and $\frac{1}{x^2+n}$ if m and n are both .1 for x between 1 and 2.