

Worksheet: Improper integrals

Compute these integrals with friends! Please carefully write the limit, for example

$$\int_1^{\infty} \frac{dx}{x^2} = \lim_{t \rightarrow \infty} \int_1^t \frac{dx}{x^2} = \lim_{t \rightarrow \infty} \left[-\frac{1}{x} \right]_1^t = \lim_{t \rightarrow \infty} 1 - \frac{1}{t} = 1$$

A. $\int_2^{\infty} \frac{1}{9+x^2} dx =$

B. $\int_{-\infty}^0 e^x dx =$

C. $\int_0^1 \frac{1}{\sqrt[4]{x}} dx =$

D. $\int_0^1 \ln t dt =$

E. $\int_1^2 \frac{dx}{1-x} =$

F. $\int_0^\infty e^x e^{-sx} dx =$

G. $\int_0^\pi \tan x dx =$

H. $\int_2^\infty \frac{dx}{x \ln^3 x} =$