

Worksheet: Improper integrals! Please work in groups.

Start by finding your group. The problems are mostly improper integrals, with a bit of other stuff. For the improper integrals, use proper limit notation. Each problem has a clean simplified answer, or “diverges”; please put that answer in the box.

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

2. $\int_{-\infty}^2 \cos(x) dx =$

3. $\int_3^{\infty} xe^{-x} dx =$

4. Compute the trapezoid rule approximation T_4 for the integral $\int_1^2 \frac{1}{x^2} dx$.

5. $\int_0^1 \frac{1}{x^2} dx =$

6. $\int_0^4 \frac{1}{\sqrt{x}} dx =$

7. $\int x^2 \cos(x^3) dx =$

8. $\int_{-2}^2 \frac{1}{1+x} dx =$