

# Improper Integrals - Worksheet

Determine if the following improper integrals are convergent or divergent.

1.  $\int_0^1 \frac{dx}{x^{2/3}}$

6.  $\int_1^\infty \frac{dx}{2x^7 + 9}$

2.  $\int_{-\infty}^1 \frac{dx}{(x-2)^2}$

7.  $\int_1^\infty \frac{2 + \sin x}{\sqrt{x}} dx$

3.  $\int_{-\infty}^1 \frac{dx}{(x-2)^2}$

8.  $\int_0^1 \frac{dx}{(\ln x)^2}$

4.  $\int_0^\infty x e^{-x} dx$

9.  $\int_0^1 \frac{\cos x}{x^{5/6}} dx$

5.  $\int_{-\infty}^\infty \frac{dx}{9 + x^2}$

10.  $\int_0^\infty \frac{x^3 + 3}{2 + \sqrt{x}} dx$