

Example 1. Show that $\int_{-\infty}^0 e^x dx = 1$.

Example 2. Find the integral $\int_1^{\infty} \frac{1}{x^2} dx$.

Example 3. Determine whether the integral $\int_1^{\infty} \frac{1}{x} dx$ is convergent or divergent.

Example 4. Determine the values of p the integral $\int_1^{\infty} \frac{1}{x^p} dx$ convergent?

Example 5. Show that $\int_{-1}^{\infty} 6x^2 e^{-x^3} dx = 1$.

Example 6. Show that $\int_e^{\infty} \frac{1}{x \ln x} dx = \infty$.

Example 7. Show that $\int_1^e \frac{1}{x\sqrt{\ln x}} dx = 2$.

Example 8. Find $\int_2^6 \frac{1}{\sqrt{x-2}} dx$.

Example 9. Determine whether $\int_0^4 \frac{1}{x-2} dx$ converges or diverges.

Example 10. Determine whether $\int_1^{\infty} e^{-x^2} dx$ converges or diverges.

Example 11. Determine whether $\int_0^{\infty} e^{-x^2} dx$ converges or diverges.