

Improper Integrals

Example

1. Calculate $\int_{-\infty}^{\infty} e^{-|x|} dx$.

Problems

2. True False When calculating $\int_{-\infty}^{\infty} f(x) dx$, the final result depends on the a we choose to split it up as $\int_{-\infty}^a f(x) dx + \int_a^{\infty} f(x) dx$.
3. True False Since the function $f(x) = x$ is odd, we know that $\int_{-n}^n f(x) dx = 0$ for all integers n .
4. True False Since the function $f(x) = x$ is odd, we know that $\int_{-\infty}^{\infty} f(x) dx = 0$ for all integers n .
5. Compute $\int_{-\infty}^{\infty} 2xe^{-x^2} dx$.

Histograms and Probability

Problems

6. Draw a histogram with bins $[0.5, 2.5]$, $[2.5, 4.5]$, $[4.5, 6.5]$, $[6.5, 8.5]$, $[8.5, 10.5]$.
7. Calculate the probability that randomly choosing a value between 1 and 10 gives 7 or 8.
8. Calculate the probability of getting a 7 or 8 using class data.
9. Calculate the probability that randomly choosing a value between 1 and 10 gives an even number.
10. Calculate the probability of getting an even number using class data.