
Exam 1 Review T/F

1. T/F (with justification): The value of $\int_{-\pi}^{\pi} \sin^9 x \, dx$ is 0.
2. T/F (with justification): To evaluate $\int \frac{dx}{x^2\sqrt{x^2+2}}$ by trigonometric substitution, use $x = 2 \tan \theta$.
3. T/F (with justification): For differentiable $f(x)$,

$$\int_0^{\pi} f(x) \cos x \, dx = - \int_0^{\pi} f'(x) \sin x \, dx.$$

4. T/F (with justification) Computing $\int \frac{x}{x^2-1} \, dx$ requires partial fractions.
5. T/F (with justification) The Trapezoidal Rule for $\int_a^b f(x) \, dx$ has no error if $f(x)$ is linear.
6. T/F (with justification) The integral $\int_0^2 \frac{dx}{x-1}$ is convergent.