

Worksheet 5

Claudiu Raicu

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Determine the following integrals

1. $\int (xe^{x^2} - 2x)dx.$

2. $\int (x^2 - x \sin(2x))dx.$

3. $\int_1^3 x^2 e^{x^3} dx.$

4. $\int_0^{\pi/4} \tan(x)dx.$

5. $\int_0^{\pi/2} \sin(2x - \frac{\pi}{2})dx.$

6. $\int_0^{\sqrt{2}} \sqrt{4 - x^2} \cdot 2x dx.$

7. Find the area under the graph of $y = (x + 1)^{-3/2}$ for $x \geq 3$.

Evaluate the following improper integrals whenever they are convergent.

8. $\int_3^{\infty} \frac{x^2}{\sqrt{x^3 - 1}} dx$

9. $\int_2^{\infty} \frac{1}{x \ln(x)} dx.$

10. $\int_{-\infty}^0 \frac{8}{(x - 5)^2} dx.$