

Practice Problems for Exam 1

Evaluate the following integrals.

1. $\int \frac{e^{\arctan x}}{1+x^2} dx$

2. $\int x \arctan x dx$

3. $\int \frac{\sec^2 t}{1-\tan^2 t} dt$

4. $\int x^2 \sqrt{1-x^2} dx$

5. $\int x^3 e^{-x^2} dx$

6. $\int \sec^3 x \tan^3 x dx$

7. $\int \tan^2 x \sec x dx$

8. $\int \sin^3 t \cos^3 t dt$

9. $\int \frac{x^2+2}{(x^2+1)^2} dx$

10. $\int \frac{x^2+4}{(x^2+1)^2(x^2+2)} dx$

11. $\int_0^1 \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$