Math 109 HW2

Fall 2018

Evaluate the following integrals

1. $\int x \tan^{-1} x dx$

2. $\int \arcsin x dx$

3. $\int t^3 e^{t^2} dt$

4. $\int \frac{\ln t}{t^2} dt$

5. $\int e^{\sqrt{x}} dx$

6. $\int_0^{2\pi} e^{\cos t} sin2t dt$

7. $\int_{e^{1/2}}^{e} \frac{\arcsin(\ln x)}{x} dx$

8. $\int \sin^2 x \cos^2 x dx$

9. $\int \sin x \cos^2 x dx$

10. $\int \tan^2 x \sec^4 x dx$

11. Show that $\int_0^{\pi} \sin^n x dx = \frac{n-1}{n} \int_0^{\pi} \sin^{n-2} x dx$ where $n \geq 2$ is an integer.