

Calculus II, Math 3495

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Basic Integration Formulas:

1. $\int x^r dx = \begin{cases} \frac{1}{r+1} x^{r+1} & \text{if } r \neq -1 \\ \ln x & \text{if } r = -1 \end{cases}$ Power Rule

2. $\int \sin x dx = -\cos x + c$

3. $\int \cos x dx = \sin x + c$

4. $\int \tan x dx = \int \frac{\sin x}{\cos x} dx = -\ln|\cos x| + c = \ln|\sec x| + c$

5. $\int \sec^2 x dx = \tan x + c$

6. $\int \sec x \tan x dx = \sec x + c$

7. $\int \sin x dx = -\cos x + c$

8. $\int u^n du = \frac{u^{n+1}}{n+1} + c, n \neq -1$

9. $\int \frac{du}{u} = \ln|u| + c$

10. $\int \frac{1}{\sqrt{1-x^2}} dx = \arcsin x + c$

11. $\int \frac{1}{1+x^2} dx = \arctan x + c$

12. $\int e^u du = e^u + c$

13. $\int u dv = uv - \int v du$