

112-1 Calculus Chapter_7.1 Homework 2023/12/22

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請默寫下P.383 P.384的Standard Integral Form

Standard Ingegral Forms

Constants, Powers	1. $\int k \cdot du = ku + C$	2. $\int u^r \cdot du = \begin{cases} \frac{u^{r+1}}{r+1} + C, & r \neq -1 \\ \ln u + C, & r = -1 \end{cases}$
Exponentials	3. $\int e^u \cdot du = e^u + C$	4. $\int a^u \cdot du = a^u \cdot \frac{1}{\ln a} + C, a \neq 1, a > 0$
Trigonometric Functions	5. $\int \sin u \cdot du = -\cos u + C$	6. $\int \cos u \cdot du = \sin u + C$
	7. $\int \sec^2 u \cdot du = \tan u + C$	8. $\int \csc^2 u \cdot du = -\cot u + C$ (Remember minus sign)
	9. $\int \sec u \tan u \cdot du = \sec u + C$	10. $\int \csc u \cot u \cdot du = \csc u + C$ (Remember minus sign)
	11. $\int \tan u \cdot du = -\ln \cos u + C$	12. $\int \cot u \cdot du = \ln \sin u + C$
	13. $\int \frac{du}{\sqrt{a^2 - u^2}} = \sin^{-1}\left(\frac{u}{a}\right) + C$	14. $\int \frac{du}{a^2 + u^2} = \frac{1}{a} \tan^{-1}\left(\frac{u}{a}\right) + C$
Hyperbolic Functions	15. $\int \frac{du}{u\sqrt{u^2 - a^2}} = \frac{1}{a} \sec^{-1}\left(\frac{ u }{a}\right) + C$	
	16. $\int \sinh u \cdot du = \cosh u + C$	17. $\int \cosh u \cdot du = \sinh u + C$