

## 解析学I (担当: 近藤) #10 2005年6月30日

[I] 次の不定積分を書け.

$$\begin{aligned} (1) \int dx & \quad (2) \int x^3 dx & (3) \int \sqrt{x} dx & (4) \int \frac{dx}{x^4} \\ (5) \int \frac{dx}{x} & (6) \int e^x dx & (7) \int 3^x dx & (8) \int \sin x dx \\ (9) \int \cos x dx & (10) \int \frac{dx}{\cos^2 x} & (11) \int \sinh x dx \\ (12) \int \cosh x dx & (13) \int \frac{dx}{\cosh^2 x} & (14) \int \frac{dx}{\sqrt{1-x^2}} \\ (15) \int \frac{dx}{\sqrt{1+x^2}} & (16) \int \frac{dx}{\sqrt{x^2-1}} & (17) \int \frac{dx}{1+x^2} \\ (18) \int \frac{dx}{x^2-1} \end{aligned}$$

[II] 次の不定積分を求めよ.

$$\begin{aligned} (1) \int (5x^4 + 6x^2) dx & \quad (2) \int \frac{1+x^3}{x^4} dx & (3) \int \frac{1}{\sqrt[3]{x}} dx \\ (4) \int \cos^2 x dx \end{aligned}$$

(置換積分法)

$$\begin{aligned} (5) \int 3x^2(x^3+2)^3 dx & \quad (6) \int \frac{2x-1}{x^2-2x+1} dx & (7) \int \frac{1}{\sqrt{2x-x^2}} dx \\ (8) \int \frac{x^2}{\sqrt{1-x^6}} dx & (9) \int \frac{\cos x}{1+\sin x} dx \\ (10) \int \tanh x dx & (11) \int xe^{x^2} dx & (12) \int \frac{\log x}{x} dx \end{aligned}$$

(部分積分法)

$$\begin{aligned} (13) \int x^2 e^x dx & \quad (14) \int x \log x dx & (15) \int x^2 \cos x dx \\ (16) \int \text{Sin}^{-1} x dx \end{aligned}$$