

解析学I (近藤) 小テスト#10 (2003年6月24日)

[1] 次の不定積分を書け.

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|-------------------------------------|-------------------------------------|-------------------------------------|---------------------------|
| (1) $\int dx$ | (2) $\int x^4 dx$ | (3) $\int \sqrt{x} dx$ | (4) $\int \frac{dx}{x^5}$ |
| (5) $\int \frac{dx}{x}$ | (6) $\int e^x dx$ | (7) $\int 2^x dx$ | (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) $\int \frac{dx}{1-x^2}$ | | | |

[2] 次の不定積分を求めよ.

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| (1) $\int (x^2 - 3x + 1) dx$ | (2) $\int \left(x^7 + \frac{1}{x^9}\right) dx$ | (3) $\int \frac{(x+1)^2}{x^2} dx$ |
| (4) $\int (1+x)\sqrt[3]{x} dx$ | (5) $\int (4 \sin x - 3 \cos x) dx$ | |

(置換積分法)

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| (6) $\int (2x+5)^6 dx$ | (7) $\int (2x^3+1)(x^4+2x)^{10} dx$ | | |
| (8) $\int \frac{x}{(1+x^2)^3} dx$ | (9) $\int \frac{dx}{x^2+4}$ | (10) $\int x \cos(2x^2+1) dx$ | (11) $\int \frac{dx}{\sqrt{1+3x}}$ |
| (12) $\int \sqrt{x^2-x^4} dx$ | (13) $\int \frac{\sin x}{\cos^3 x} dx$ | (14) $\int \frac{dx}{\tan x}$ | |
| (15) $\int \frac{dx}{e^x+e^{-x}}$ | (16) $\int \frac{dx}{x \log x}$ | (17) $\int \frac{x}{\sqrt{1-(x+2)^2}} dx$ | |

(部分積分法)

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|----------------------------------|---------------------------|
| (18) $\int x \log x dx$ | (19) $\int x^2 \sin x dx$ |
| (20) $\int x\sqrt{1+x} dx$ | (21) $\int x^2 e^{2x} dx$ |
| (22) $\int \text{Sin}^{-1} x dx$ | |