解析学I（近藤） 小テスト#11（2003年7月3日）

[1] 次の不定積分を求めよ.

（有理式の積分）

(1) $\displaystyle\int \frac{dx}{x^2+2x+2}$ (2) $\displaystyle\int \frac{x^3-x+1}{x^2+1}\,dx$ (3) $\displaystyle\int \frac{5x-4}{2x^2+x-6}\,dx$ (4) $\displaystyle\int \frac{x^2}{x^2-x-6}\,dx$

(5) $\displaystyle\int \frac{2}{(x-1)(x^2+1)}\,dx$ (6) $\displaystyle\int \frac{2}{x(x-1)(x-2)}\,dx$ (7) $\displaystyle\int \frac{2x}{(x-1)^2(x^2+1)}\,dx$

(8) $\displaystyle\int \frac{x+1}{x^3+x^2-2x}\,dx$ (9) $\displaystyle\int \frac{7x-1}{x^2-x-6}\,dx$ (10) $\displaystyle\int \frac{2x^2+4}{(x^2+1)^2}\,dx$

（根号を含む積分）

(11) $\displaystyle\int \frac{dx}{x+2\sqrt{x-1}}$ (12) $\displaystyle\int \frac{dx}{\sqrt{x^2-1}}$ (13) $\displaystyle\int \frac{x\sqrt{x}}{x+\sqrt{x}}\,dx$

(14) $\displaystyle\int \frac{x^2}{\sqrt{x^2+1}}\,dx$ (15) $\displaystyle\int \frac{dx}{(x+1)^2\sqrt{1-x^2}}$

（三角関数の有理式の積分）

(16) $\displaystyle\int \frac{1+\sin x}{1+\cos x}\,dx$ (17) $\displaystyle\int \frac{dx}{\sin x}$ (18) $\displaystyle\int \frac{dx}{2+\cos x}$

(19) $\displaystyle\int \frac{\cos x}{4+5\sin x}\,dx$ (20) $\displaystyle\int \frac{dx}{2+\tan x}$