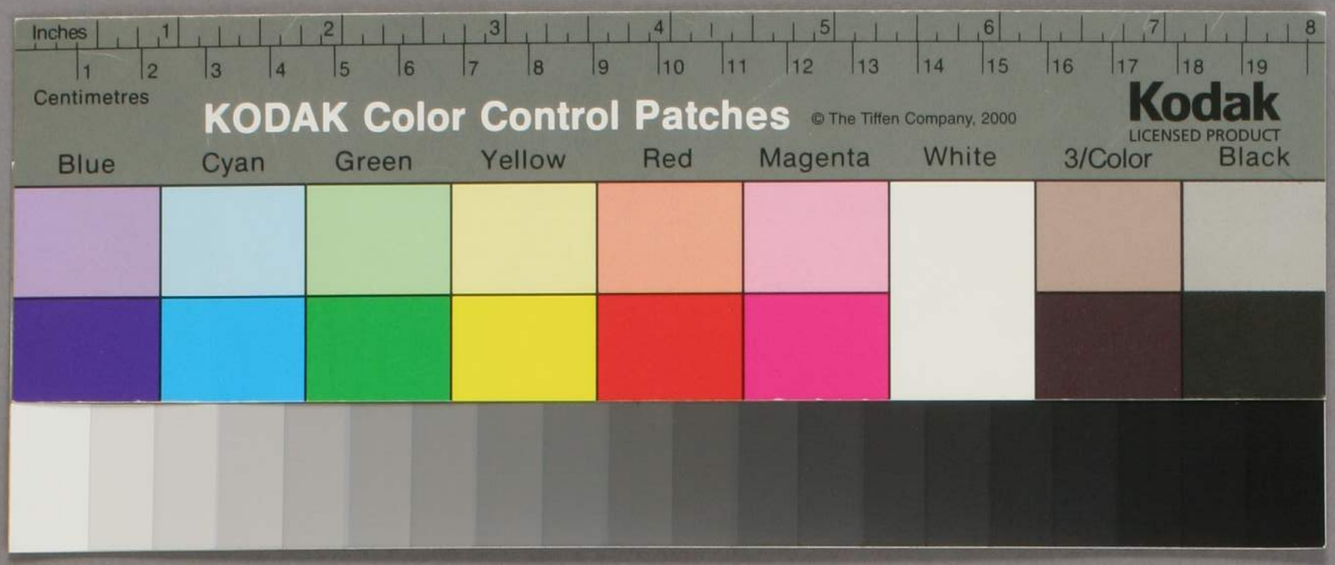
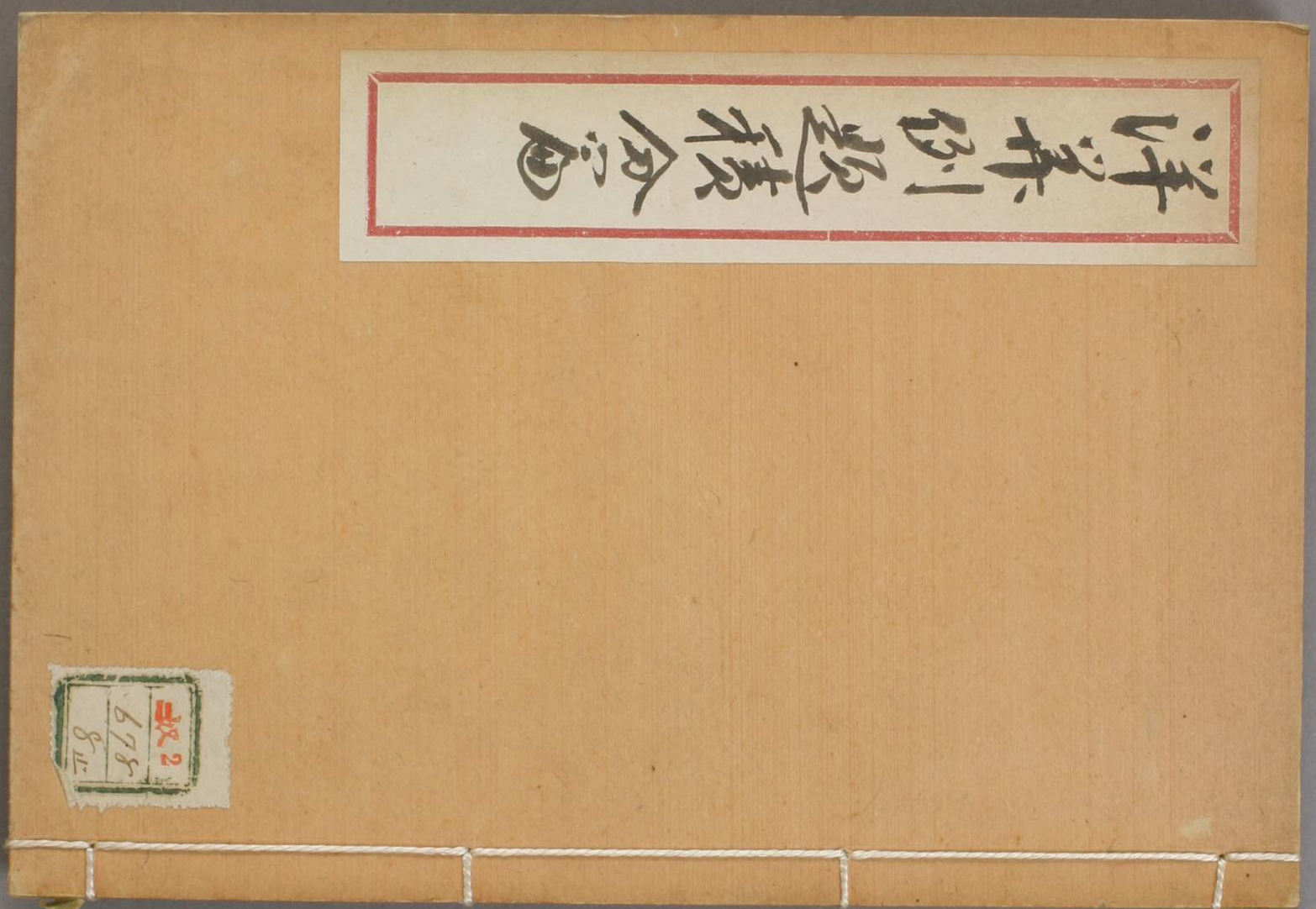

Inches
Centimetres
KODAK Color Control Patches
© The Tiffen Company, 2000
Kodak
LICENSED PRODUCT
Blue
Cyan
Green
Yellow
Red
Magenta
White
3/Color
Black



洋算例題續第四篇卷之十一

陸軍大尉福田半編輯

第四篇卷之一

式

差 $v = \frac{ax^3}{3b} + c$

差 $y = \frac{x^9}{9} + c$

差 $y = \frac{3x^{\frac{5}{3}}}{4} + c$

差 $y = 2x^{\frac{1}{2}} + c$

差 $y = -\frac{1}{2}x^{-2} + c$

差 $y = \frac{4}{5}x^5 + x^{\frac{1}{2}} + c$

差 $u = \frac{n}{m+n}ax^{\frac{m+n}{n}} + c$

差 $y = \log(a+x) + c$

差 $y = 2bc\log(a+bx) + c$

廿三　$u = \frac{e(a+bx^e)^{\frac{5}{2}}}{5b} + c$

廿四　$u = \frac{a}{2}(a^2+x^m)^2 + c$

廿五　$u = (2x+x^2)^{\frac{1}{2}} + c$

式卷二之卷

第一　$y = \frac{x}{a} - \frac{x^2}{2a^2} + \frac{x^3}{3a^3} - \frac{x^4}{4a^4} + \frac{x^5}{5a^5} \cdots\cdots + c$

第二　$y = \frac{x}{a^2} - \frac{x^2}{4a^3} + \frac{x^3}{7a^4} - \frac{x^4}{10a^5} + \frac{x^5}{25a^6} \cdots\cdots + c$

第三　$y = x + \frac{1}{2}\frac{x^3}{3} + \frac{1.3}{2.4}\frac{x^5}{5} + \frac{1.3.5}{2.4.6}\frac{x^7}{7} + \cdots\cdots + c$

第四　$\int_a^b 2x\,dx = b^2 - a^2$

第五　$\int_a^b 3x^2\,dx = 152$

第六　$\int_4^6 \frac{\pi}{2}x^2\,dx = \frac{76}{3}\pi$

第七　$\int_{10}^{20} 2(l+x)\,dx = 380$

十　$y = \frac{a}{b}lgx + c$

十一　$y = 3a^2blgx + c$

十二　$y = a^2x + abx^2 + \frac{1}{3}b^2x^3 + c$

十三　$y = 25x + \frac{70}{3}x^3 + \frac{42}{5}x^5 + c$

十四　$y = a^3x + 3a^2x^3 + \frac{27}{5}ax^5 + \frac{27}{7} + c$

十五　$y = \frac{(a+3x^2)}{3} + c$

十六　$y = \frac{2}{3}(x+ax)^{\frac{3}{2}} + c$

十七　$y = \frac{1}{2}(2x^3-1)^2 + c$

十八　$y = \frac{3}{2}(1+x)^{\frac{2}{3}} + c$

十九　$y = \frac{1}{3}(ax^2+bx^3)^3 + c$

二十　$y = \frac{3}{4}(ax+bx^2)^{\frac{4}{3}} + c$

二十一　$u = \frac{m(a+bx^e)^{\frac{2}{e}}}{2b} + c$

二十二　$u = (a^2+x^2)^{\frac{1}{2}} + c$

廿五　$y = \frac{1}{\sqrt{6}} \tan^{-1} x\sqrt{\frac{3}{2}} + C$

廿六　$y = \frac{1}{2} \tan^{-1} \frac{3}{2} x + C$

廿七　$y = \frac{1}{\sqrt{5}} \tan^{-1} x\sqrt{5} + C$

廿八　$y = \frac{1}{\sqrt{5}} \operatorname{sec}^{-1} x\sqrt{\frac{2}{3}} + C$

廿九　$y = \operatorname{sec}^{-1} x\sqrt{\frac{2}{3}} + C$

卅　$y = \frac{5}{\sqrt{2}} \operatorname{versb}^{-1} x + C$

卅一　$y = \frac{1}{3} \operatorname{versb}^{-1} 3x + C$

卅二　$y = \frac{3}{2} \operatorname{versb}^{-1} \frac{2}{9} x + C$

三十　$\int \frac{x^2 dx}{(x+2)^2(x+4)^2} = -\frac{3x+12}{x^2+6x+8} + \log\left(\frac{x+4}{x+2}\right) + C$

卅一　$\int \frac{2x\,dx}{(x^2+1)(x^2+3)} = \log\sqrt{\frac{x^2+1}{x^2+3}}$

卅二　$u = \frac{1}{5}\left(x \tan^{-1}\frac{x}{2} - \tan^{-1} x\right) + C$

卅三　$u = \frac{1}{2(x-1)^2} - \frac{1}{2}\frac{1}{x-1} + \frac{3}{2}\log\frac{\sqrt{x^2+1}}{x-1} - \tan^{-1} x + C$

卅四　$\int_a^b 6(c + nx^2)x^2\,dx = 57600$

卅五　$\int_a^b \frac{2x}{c+x} = \log\frac{7}{6}$

卅六　$u = -\log\cos x + C$

卅七　$u = \log\sin x + C$

卅八　$u = \tan\frac{1}{2}x + C$

卅九　$u = -\log(1+\cos x) + C$

四十　$u = \log\tan\frac{1}{2}x + C$

四一　$u = \tan x - x + C$

四二　$u = \frac{1}{2}x - \frac{1}{4}\sin 2x + C$

四三　$y = \sin^{-1}\frac{x}{2} + C$

四四　$y = 5\sin^{-1}\frac{x}{\sqrt{3}} + C$

四五　$y = 2\cos^{-1}\frac{x}{6} + C$　四九　$y = \sin^{-1} x\sqrt{\frac{2}{3}} + C$

五十　$y = \frac{1}{2}\cos^{-1}\frac{2}{3}x + C$

八　$u=\frac{3}{2b^3}\left\{\frac{(a+bx^2)^{\frac{11}{3}}}{11}-\frac{2a(a+bx^2)^{\frac{8}{3}}}{8}+\frac{a^2(a+bx^2)^{\frac{5}{3}}}{5}\right\}+C$

九　$u=-\frac{1}{3}(2a+x^2)(a-x^2)^{\frac{1}{2}}+C$

十　$u=\left(\frac{a^2+x^2}{2}\right)^2-a^2(a^2+x^2)+\frac{a^4}{4}\log(a^2+x^2)+C$

十一　$u=\frac{(2x^2-1)(1+x^2)^{\frac{1}{2}}}{3x^3}+C$

十二　$u=-\frac{1+2x^2}{3x^3}(1-2x^2)^{\frac{1}{2}}+C$

十三　$u=-(2x+\frac{1}{x})(1+x^2)^{-\frac{1}{2}}+C$

十四　$u=\log\left\{x+(a^2+x^2)^{\frac{1}{2}}\right\}+C$

十五　$u=-\frac{2\sqrt{2ax-x^2}}{x}+C$

十六　$u=\frac{1}{a}\frac{\sqrt{x}}{\sqrt{2a-x}}+C$

十七　$u=-\frac{1}{a^2}\frac{\sqrt{a^2+x^2}}{x}+C$

十八　$u=-\frac{2a+3x^3}{2a^2x(a+x^3)^{\frac{2}{3}}}+C$

廿　$u=\frac{1}{2}\left\{\log\frac{(1+x)^3}{\sqrt{1+x^2}}-\tan^{-1}x\right\}+C$

廿一　$u=\frac{1}{1+x}+\log\frac{\sqrt{x^2+x^2+x^2}}{(1+x)^2}-\frac{1}{\sqrt{3}}\tan^{-1}\frac{2x+1}{\sqrt{3}}+C$

式卷三之卷

卅　$u=\frac{1}{3}a^2x^3+\frac{1}{3}abx^6+\frac{1}{9}b^2x^9+C$

卅一　$u=\frac{1}{4}a^3x^4+\frac{3}{7}a^2b^2x^6+\frac{3}{8}ab^2x^8+\frac{1}{10}b^3x^{10}+C$

卅二　$u=\frac{1}{5}a^3x^5+\frac{3}{8}a^2bx^8+\frac{3}{11}ab^2x^{11}+\frac{1}{14}b^3x^{14}+C$

卅三　$u=\frac{1}{6}a^3x^6+\frac{3}{12}a^2x^{12}+\frac{3}{14}ab^2x^{14}+\frac{1}{18}b^3x^{18}+C$

卅四　$u=2ax-ax^2-\frac{1}{3}x^3+\frac{1}{4}x^4+C$

卅五　$u=\frac{(a+bx^2)^{\frac{7}{2}}}{7b^2}-\frac{a(a+bx^2)}{5b^2}+C$

卅六　$u=\frac{1}{b^2}\left\{\frac{(a+bx^2)^{\frac{7}{2}}}{7}-\frac{2a(a+bx^2)^{\frac{5}{2}}}{5}+\frac{a^2(a+bx^2)^{\frac{3}{2}}}{3}\right\}$

三十 $X_2 = \frac{3a}{2} X_1 - \frac{x}{2}\sqrt{2ax-x^2}$

卅一 $X_3 = \frac{5a}{3} X_2 - \frac{x^2}{3}\sqrt{2ax-x^2}$

卅二 $X_4 = \frac{7a}{4} X_3 - \frac{x^3}{4}\sqrt{2ax-x^2}$

卅三 $\int x^{-2}(2-x^2)^{-\frac{3}{2}}\partial x = \frac{x^{-1}(2-x^2)^{-\frac{1}{2}}}{2} + \int (2-x^2)^{-\frac{3}{2}}\partial x$

卅四 $\int \frac{\partial x}{\sqrt{a^2+x^2}} = log(x+\sqrt{a^2+x^2})$

卅五 $\int \partial x\sqrt{x^2-a^2} = \frac{x\sqrt{x^2-a^2}}{2} - \frac{a^2}{2} log(x+\sqrt{x^2-a^2})$

卅六 $\int (2-x^2)^{-\frac{3}{2}}\partial x = \frac{x}{2\sqrt{2-x^2}}$

卅七 $\int x(1+x^3)^{\frac{1}{3}}\partial x = -\frac{x^2}{2}(1+x^3)^{-\frac{2}{3}+2}\int x_{n-1}(1+x^3)^{\frac{2}{3}}\partial x$

式中 $x(1+x^3)^{\frac{2}{3}}\partial x$ ノ項積分ヲ求ムベシ、詳ニ級数ヲ作リ

卅八 $\int x^3(a+bx^2)^{-\frac{1}{2}}\partial x = (\frac{x^2}{3b} - \frac{2a}{3b^2})\sqrt{a+bx^2} + C$

卅九 $\int x^5(a+bx^2)^{-\frac{1}{2}}\partial x = (\frac{x^4}{5b} - \frac{4ax^2}{15b^2} + \frac{8a^2}{15b^3})(a+bx^2)^{\frac{1}{2}}$

十九 $u = \frac{1}{60}(1+x^2)^5(5x^2-1)$

二十 $u = \frac{x^2+2}{(1+x^2)^{\frac{1}{2}}}$

二十一 $u = \frac{x^2}{2}(log x - \frac{1}{2}) + C$

二十二 $u = -\frac{3x^2+2}{3(1+x^2)^{\frac{3}{2}}} + C$

二十三 $u = \frac{x^{n+1} log x}{n+1} - \frac{x^{n+1}}{(n+1)^2} + C$

二十四 $u = -\frac{x^2}{3}(a-x^2)^{\frac{3}{2}} - \frac{2}{15}(a-x^2)^{\frac{5}{2}} + C$

二十五 $u = -\frac{(1-x^2)^{\frac{1}{2}}}{x} - \sin^{-1} x$

二十六 $u = \frac{x}{2}(a^2-x^2)^{\frac{1}{2}} + \frac{a^2}{2}\sin^{-1}\frac{x}{a} + C$

二十七 $X_4 = \frac{3a^2}{4} X_2 - \frac{x^3}{4}\sqrt{a^2-x^2}$

二十八 $X_6 = \frac{5a^2}{6} X_4 - \frac{x^5}{6}\sqrt{a^2-x^2}$

二十九 $X_8 = \frac{7a^2}{8} X_6 - \frac{x^7}{8}\sqrt{a^2-x^2}$

式后四之卷

卅一　$u = \frac{1}{4} \log \frac{(x+2)^{12}}{x(x+4)^{11}} + C$

卅二　$u = \log \frac{x}{x+1} - \frac{2}{x+1} + C$

卅三　$u = \log \frac{2x+1}{x(x+1)} + C$

卅四　$u = \frac{2}{25} \log \frac{x-2}{x+3} - \frac{3}{5} \frac{1}{x+3} + C$

卅五　$u = \frac{1}{3} \log \frac{(x-1)^3}{\sqrt{x^4+2x^3}} + C$

卅六　$u = \log \frac{(x^2+1)^{\frac{1}{20}}(x+2)^{\frac{2}{5}}}{\sqrt{x+1}} + \frac{3}{10} \tan^{-1} x$

卅七　$u = \frac{1}{6} \log \left(\frac{(x+1)\sqrt{x^2-x+1}}{(x+1)\sqrt{x^2+x+1}} \right) - \frac{1}{2\sqrt{3}} \left\{ \tan^{-1} \frac{2x-1}{\sqrt{3}} + \tan^{-1} \frac{2x+1}{\sqrt{3}} \right\} + C$

卅八　$u = \frac{4x^2+3}{4(x^2+1)} + \log \sqrt{x^2+1} + C$

卅九　$\int \frac{\partial x}{x^3 \sqrt{a+bx^2}} = \left(-\frac{1}{3ax^3} + \frac{2b}{3a^2 x} \right) \sqrt{a+bx^2} + C$

四十　$\int x^{-6} (a+bx^2)^{-\frac{1}{2}} \partial x = \left(-\frac{1}{5ax^5} + \frac{4b}{15a^2 x^3} - \frac{8b^2}{15a^3 x} \right) \sqrt{a+bx^2}$

四一　$\int (a-x^2)^{\frac{1}{2}} \partial x = \frac{x(a-x^2)^{\frac{1}{2}}}{2} + \frac{a}{2} \log \left(x + (a-x^2)^{\frac{1}{2}} \right) + C$

四二　$\int (a+x^2)^{\frac{3}{2}} \partial x = \frac{x(a+x^2)^{\frac{3}{2}}}{4} + \frac{3ax(a+x^2)^{\frac{1}{2}}}{8} + \frac{3a^2}{8} \log \left\{ x + (a+x^2)^{\frac{1}{2}} \right\} + C$

四三　$\int (a \pm bx^2)^{-\frac{3}{2}} \partial x = \frac{x}{a} (a \pm bx^2)^{-\frac{1}{2}} + C$

四四　$\int (a^2+x^2)^{-2} \partial x = \frac{x}{2a(a^2+x^2)} + \frac{1}{2a^3} \tan^{-1} \frac{x}{a} + C$

十八　$v = \log\left(\frac{x}{1-x}\right) + C$

十九　$v = \log\left(\frac{x}{\sqrt{1-x^2}}\right) + C$

二十　$v = \frac{1}{k-a} \log \frac{(x+k)^k}{(x+a)^a} + C$

二十一　$v = \frac{a^2}{(b-a)(c-a)} \log(x+a) + \frac{b}{(a-b)(c-b)} \log(x+b)$,

$+ \frac{c^2}{(a-c)(b-c)} \log(x+c) + C$

二十二　$v = \frac{(x-a)\sqrt{2ax-x^2}}{2} + \frac{a^2}{2} \sin^{-1}\frac{x}{a} + C$

二十三　$v = \frac{x}{a}\sqrt{\frac{x}{2a-x}} + \frac{1}{a}\sqrt{2ax-x^2} - \sqrt{\quad}\sin^{-1}\frac{x}{a} + C$

二十四　$v = \pm 2q\ell \cdots\cdots$

二十五　$v = \frac{1}{4}x^4 + \log(\sqrt{x^2+1}) + C$

二十六　$v = \frac{1}{2\sqrt{2}} \log \sqrt{\frac{x^2 - x\sqrt{2}+1}{x^2+x\sqrt{2}+1}} + \frac{1}{2\sqrt{2}} \tan^{-1}\left(\frac{x\sqrt{2}}{1-x^2}\right) + C$

二十七　$v = \frac{x^4}{4} - x + \frac{1}{3}\log\frac{(x+1)}{\sqrt{x^2-x+1}} + \frac{1}{\sqrt{3}}\tan^{-1}\frac{(2x-1)}{3} + C$

二十八　$v = \frac{2}{5}(a+x)^{\frac{5}{2}} - \frac{2a}{3}(a+x)^{\frac{3}{2}} + C$

二十九　$v = \frac{2}{3a}\left((x+a)^{\frac{3}{2}} + x^{\frac{3}{2}}\right) + C$

三十　$v = \frac{2}{\sqrt{a}} \log \frac{\sqrt{x}}{\sqrt{a+x}+\sqrt{a}} + C$

三十一　$v = -\frac{x(b-x)^{\frac{m}{n}+2}}{m+2n} - \frac{x(a-b)(b-x)^{\frac{m}{n}+1}}{m+n}$

三十二　$v = \frac{x}{4}\left(x^2+4a\right)^{\frac{3}{2}} + C$

三十三　$v = \frac{2\sqrt{a+bx^3}}{5} - \frac{2\sqrt{a}}{3}\log\frac{\sqrt{b+ax^3}+\sqrt{ax^3}}{\sqrt{b}} + C$

三十四　$v = \sqrt{x^2-a^2} - a\tan^{-1}\frac{\sqrt{x^2-a^2}}{a} + C$

二十五　$u = \log(x+1) + \frac{x}{x+2} + C$

二十六　$u = \log \frac{\sqrt{x^2+1}}{x+1} + \tan^{-1} x + C$

二十七　$u = \frac{1}{6}\frac{1}{x+1} + \frac{1}{9}\log \frac{x+1}{\sqrt{x^2-2x+3}} + \frac{1}{3\sqrt{2}} \tan^{-1} \frac{x-1}{2} + C$

二十八　$u = \frac{1}{\sqrt{2}} \log \frac{\sqrt{2x} + \sqrt{1+x^2}}{1-x^2} + C$

二十九　$u = \log \left\{ 2\sqrt{x^2+x+1} + 2x + 1 \right\} + C$

三十　$u = -\frac{1}{x} + \log \frac{\sqrt{x^2+x+1}}{x} - \frac{1}{\sqrt{3}} \tan^{-1} \frac{2x+1}{\sqrt{3}} + C$

三十一　$u = \frac{1}{5} \left\{ 5\sqrt{\frac{2}{3}} \tan^{-1} \left(\sqrt{\frac{3}{2x^2}} \right) - \frac{5}{x} \right\} + C$

三十二　$u = \frac{2-2x-5x^2}{4x^2(1+x)} + \log \sqrt[8]{\frac{(x+1)^3(x-1)}{(1+x^2)x^3}} - \frac{1}{4} \tan^{-1} x + C$

三十三　$u = \frac{x^2}{9} - \frac{2x}{9} + \frac{2}{9}\sqrt{\frac{2}{3}} \tan^{-1} x\sqrt{\frac{3}{2}} + C$

三十四　$u = \frac{1}{4} a^2 \pi$

三十五　$u = \frac{x^2}{3} \left\{ (\log x)^2 - \frac{2}{3}\log x + \frac{2}{9} \right\} + C$

三十六　$u = -\frac{5+2x}{4(x+1)^2} + \frac{1}{16} \log \left(\frac{x-3}{x+1} \right) + C$

三十七　$u = \frac{3x+2}{x^2+3x+2} + \log \left(\frac{x+1}{x+2} \right)^3 + C$

三十八　$u = \frac{a^2}{2} \frac{\pi}{2}$

三十九　$u = \frac{2}{5}x^{\frac{5}{2}} - \frac{2}{3}x^{\frac{3}{2}} + x^{\frac{1}{2}} - 2\tan^{-1} x^{\frac{1}{2}} + C$

四十　$u = (x+\sqrt{2})^2 + C$

四十一　$u = \frac{3a b^2 + 2b^4}{5} + C$

四十二　$u = \frac{1}{22} \left\{ \log \left(\frac{(x+2)^3}{(x+1)^7 \sqrt{x^2+3}} \right) + 3\sqrt{3} \tan^{-1} \frac{x}{\sqrt{3}} \right\} + C$

卒三　$u = -\frac{x+2}{3(1+x+x^2)} - \frac{2}{2\sqrt{3}} \tan^{-1}\left(\frac{2x+1}{\sqrt{3}}\right) + C$

卒四　$u = \frac{x^3}{3} - \log\sqrt[4]{x^3+1}$

卒五　$u = \log\sqrt[4]{\frac{1+x}{1-x}} - \frac{1}{2}\tan^{-1}x$

卒六　$u = \frac{1}{4a}\log\frac{x-a}{x+a} + \frac{1}{2a}\tan^{-1}\frac{x}{a}$

卒七　$u = \log\sqrt{\frac{1+x^2}{1-x^2}}$

卒八　$u = \tan^{-1}(x^3)$

卒九　$u = \tan^{-1}(2x^2+1)$

卒十　$u = \log\frac{x^2-x\sqrt{2}+1}{x^2+x\sqrt{2}+1} + \frac{1}{2\sqrt{2}}\tan^{-1}\frac{x\sqrt{2}}{1-x^2}$

卒十一　$u = \frac{x^2}{2} + \frac{1}{3}\log\frac{\sqrt{x^2-x+1}}{(x+1)} + \frac{1}{\sqrt{3}}\tan^{-1}\frac{x\sqrt{3}}{2-x}$

卒十二　$u = \frac{1}{2a^2}\tan^{-1}\frac{x^2}{a^2} + C$

卒十三　$u = \frac{x^4}{2} + \frac{x^2}{2} + \frac{1}{8}\log\sqrt{1+2x^2} + C$

卒十四　$u = \frac{1}{(1+x^2)}\left(x^3+\frac{3x}{2}\right) - \frac{3}{2}\tan^{-1}x + C$

卒十五　$u = -\frac{x^2}{4}\frac{3x^2+2}{(1+x^2)^2} + \frac{1}{2}\log\sqrt{1+x^2} + C$

卒十六　$u = -\frac{1}{x^3} + \frac{1}{3x^3} - \frac{1}{x} - \tan^{-1}x + C$

卒十七　$u = -\left(\frac{1}{3x^3} - \frac{5}{3x} - \frac{5x}{2}\right)\frac{1}{1+x^2} + \frac{5}{2}\tan^{-1}x + C$

卒十八　$u = \frac{2}{\sqrt{3}}\tan^{-1}\frac{1+2x}{\sqrt{3}} + C$

卒十九　$u = \frac{1}{\sqrt{5}}\log\left\{\frac{2x+1-\sqrt{5}}{2x+1+\sqrt{5}}\right\} + C$

卒二十　$u = \frac{2}{\sqrt{4ac-b^2}}\tan^{-1}\frac{2(b+2cx)}{\sqrt{4ac-b^2}} + C$

七一 $u = \frac{2}{\sqrt{a}} \tan^{-1}\sqrt{\frac{ax-a}{a}} = \frac{2}{\sqrt{a}} \sin^{-1}\sqrt{\frac{ax-a}{ax}}$

七二 $u = -\frac{\sqrt{a+bx}}{x} + \frac{b}{2\sqrt{a}} \log\left\{\frac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}\right\}$

七三 $u = -\frac{\sqrt{4+3x}}{3x} - \frac{3}{10} \log\frac{\sqrt{4+3x}-2}{\sqrt{4+3x}+2}$

七四 $u = \left\{x^2-4x-8\right\}\frac{2}{5\sqrt{1+x}}$

七五 $u = \frac{2}{a(a+bx)^{\frac{1}{2}}} + \frac{1}{a\sqrt{a}} \log\left(\frac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}\right)$

七六 $u = (x^2-6x-9)\frac{3}{4(1+x^2)^{\frac{3}{2}}}$

七七 $u = \frac{2+3x}{3}\frac{2}{(1+2x)^{\frac{3}{2}}} + \log\left(\frac{\sqrt{1+2x}-1}{\sqrt{1+2x}+1}\right)$

七八 $u = -\left(x^3+4x^2+\frac{31x}{5}+\frac{128}{35}\right)\frac{2}{(2+x)^{\frac{7}{2}}}$

七九 $u = (2+3x)^{\frac{2}{3}}\left\{\frac{7-4x+5x^2}{40}\right\}$

七十 $u = \frac{1}{\sqrt{a}} \log\frac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}$

七十一 $u = \frac{1}{6}\log\frac{(x-1)\sqrt{x^2-x+1}}{(x+1)\sqrt{x^2+x+1}} - \frac{1}{2\sqrt{3}}\tan^{-1}\frac{x\sqrt{3}}{1-x^2}$

七十二 $u = \frac{1}{3}\log 2 - \frac{1}{4} + \frac{\pi}{3\sqrt{3}}$

七十三 $u = \frac{1}{x(1+x^4)} = \log\sqrt[4]{\frac{x^4}{1+x^4}}$

七十四 $u = -\frac{1}{3ax^3} + \frac{b}{3x^2}\log\left(\frac{a+bx}{x^3}\right)$

七十五 $u = \frac{1}{3(1+x^3)} - \log\sqrt[3]{\frac{1+x^3}{x^3}}$

七十六 $u = \left(\frac{(a+bx)^2}{7} - \frac{2a(a+bx)}{5} + \frac{a^2}{3}\right)\frac{2(a+bx)^{\frac{3}{2}}}{b^2}$

七十七 $u = \left(\frac{(a+bx)^3}{7} - \frac{3}{5}a(a+bx)^2 + a^2(a+bx) - a^3\right)$

七十八 $u = \log\sqrt[3]{\frac{x^3}{1+x^3}}$

七十九 $u = \frac{1}{\sqrt{a}}\log\frac{\sqrt{a+bx}-\sqrt{a}}{\sqrt{a+bx}+\sqrt{a}}$

八〇 $u=(14x^3-12x^2+27x-81)\frac{2\sqrt{1+x}}{7.5.7}$

八一 $u=\left(x^4-\frac{4x^2}{5}+\frac{2}{15}\right)\frac{(1+x^2)^{\frac{3}{2}}}{7}$

八二 $u=-\left(\frac{1}{x^4+3x^2}\right)\frac{(1+x^2)^{\frac{3}{2}}}{5}$

八三 $u=\frac{5x^2-2}{35}(1+x^2)^{\frac{5}{2}}$

八四 $u=\frac{7x^2-2}{63}(1+x^2)^{\frac{7}{2}}$

八五 $u=-\left\{\frac{x^4}{5}+\frac{4x^2}{15}+\frac{8}{15}\right\}\sqrt{1-x^2}$

八六 $u=-\left\{\frac{x^5}{6}+\frac{5x^2}{24}+\frac{5x}{16}\right\}\sqrt{1-x^2}+\frac{5}{16}\sin^{-1}x$

八七 $u=-\left\{\frac{1}{5x^5}-\frac{2}{15x}+\frac{8}{15x}\right\}\sqrt{1+x^2}$

八八 $u=\left\{\frac{1}{3a(a+bx^2)}+\frac{2}{3a^2}\right\}\frac{x}{\sqrt{a+bx}}$

八九 $u=\frac{3}{2}\left\{\frac{\sin^{-1}x\sqrt{2}}{\sqrt{2}}+x\sqrt{1-2x}\right\}+\frac{1}{4}x(1-2x^2)^{\frac{3}{2}}$

九〇 $u=\frac{x^3+3x}{2}\frac{1}{\sqrt{1+x^2}}-\frac{3}{2}\log\left(x+\sqrt{1+x^2}\right)$

九一 $u=\frac{x^3+3x}{2}\frac{1}{\sqrt{1+x^2}}-\frac{3}{2}\log\left(x+\sqrt{1+x^2}\right)$

九二 $u=-\left(x^2+\frac{2}{3}\right)\frac{1}{(1+x^2)^{\frac{5}{2}}}$

九三 $u=\left(x^4+4x^2+\frac{8}{3}\right)\frac{1}{(1+x^2)^{\frac{7}{2}}}$

九四 $u=\left(\frac{8x^3}{105}+\frac{4x^5}{15}+\frac{x^7}{7}\right)\frac{1}{(1+x^2)^{\frac{7}{2}}}$

九五 $u=-\tan^{-1}\left(\frac{\sqrt{1-2x}}{x}\right)$

九六 $u=2\tan^{-1}\sqrt{1+x}$

九七 $u=\log\left(2x+1+2\sqrt{1+x+x^2}\right)$

一〇七 $u = \log\left(\frac{x+3-2\sqrt{1-x-x^2}}{1+x}\right)$

一〇八 $u = \cos^{-1}\left(\frac{1-x}{\sqrt{2}}\right)$

一〇九 $u = \frac{1}{2}\sin^{-1}\left(\frac{x^2}{a^2}\right)$

一一〇 $u = \sin^{-1}\sqrt{\frac{x^2-a^2}{b^2-a^2}}$

一一一 $u = \frac{x}{a\sqrt{a+bx^2}}$

一一二 $u = \sin^{-1}x - \sqrt{1-x^2}$

一一三 $u = \sin^{-1}x + \log\left(\frac{x}{1+\sqrt{1-x^2}}\right)$

一一四 $u = \frac{1}{2}\sin^{-1}x - \frac{1}{2}(2+x)\sqrt{1-x^2}$

一一五 $u = \frac{2}{3}\tan^{-1}\sqrt{\frac{x^3}{a^3-x^3}}$

九八 $u = \sin^{-1}\left(\frac{2x-1}{\sqrt{5}}\right)$

九九 $u = \frac{1}{\sqrt{2}}\log\left(\frac{x-3+3\sqrt{2}\sqrt{1-x}}{1+x}\right)$

一〇〇 $u = \log\left(\frac{2+x-2\sqrt{1+x+x^2}}{x}\right)$

一〇一 $u = \sin^{-1}\left(\frac{x-2}{3\sqrt{5}}\right)$

一〇二 $u = \frac{1}{2}\log\left(\frac{1-x\sqrt{2}\sqrt{1-x^2}}{1+x}\right)$

一〇三 $u = \frac{1}{\sqrt{2}}\cos^{-1}\sqrt{\frac{1-x^2}{1+x^2}}$

一〇四 $u = \frac{1}{\sqrt{2}}\log\left(\frac{\sqrt{1+x}+x\sqrt{2}}{\sqrt{1-x^2}}\right)$

一〇五 $u = \tan^{-1}\left(\frac{1+3x}{2\sqrt{1-x-x^2}}\right)$

一〇六 $u = \log\sqrt{x^2+\sqrt{a^2+x^2}}$

二五 $u = \frac{1}{2}\tan^{-1}\sqrt{\frac{1-x^2}{1+x^2}} - \frac{1}{4}(2x+x^2)\sqrt{1-x^2}$

二六 $u = \frac{1}{\sqrt{a-2}}\cos^{-1}\left(\frac{x\sqrt{a-2}}{x^2-1}\right.$

二七 $u = \frac{1}{\sqrt{2}}\sin^{-1}\frac{x\sqrt{2}}{1+x^2}$

二八 $u =$

二九 $u =$

三〇 $u = \frac{1}{2}(\log x)^2$

三一 $u =$

三二 $u =$

三三 $u = a^x\left\{\frac{x^3}{A} - \frac{3x^2}{A^2} + \frac{6x}{A^3} - \frac{6}{A^4}\right\}$

二六 $u = -\frac{x+a}{a^2\sqrt{2ax+x^2}}$

二七 $u = -\left\{\frac{1}{3(2ax+x^2)} - \frac{2}{3a^2}\right\}\frac{x+a}{a^2\sqrt{2ax+x^2}}$

二八 $u = \frac{2(2x+1)}{3\sqrt{1+x+x^2}}$

二九 $u = \left\{\frac{1}{1+x+x^2} + \frac{8}{3}\right\}\frac{2(2x+1)}{3\sqrt{1+x+x^2}}$

三〇 $u = \frac{\sqrt{x}}{(1+x)} + \tan^{-1}(\sqrt{x})$

三一 $u = \left(\frac{x}{3}-1\right)2\sqrt{x} + 2\tan^{-1}\sqrt{x}$

三二 $u = 2\sqrt{x} + \frac{1}{\sqrt{2}}\left\{\log\left(\frac{x+1+\sqrt{2x}}{\sqrt{1+x^2}}\right) - \tan^{-1}\frac{\sqrt{2x}}{1-x}\right\}$

三三 $u = \frac{\sqrt{2ax-x^2}}{3a^2x^2}(a+x)$

三四 $u = \sqrt{a+bx+cx^2}\left\{\frac{2cx-3b}{4c^2}\right\} + \frac{4ac-3b^2}{8c^2\sqrt{c}}\log\left(\frac{2cx+b}{2c}\right.$

一三三　$u = l^x \sqrt{\frac{1+x}{1-x}}$

一三四　$u = \log \frac{l^x}{l^x-1} - \frac{1}{l^x-1}\left\{1 + \frac{x}{2(l^x-1)}\right\}$

一三五　$u = -\frac{1}{3}(\sin\theta)^2\cos\theta - \frac{2}{3}\cos\theta$

一三六　$u = \frac{1}{3}(\cos\theta)^2\sin\theta + \frac{2}{3}\sin\theta$

一三七　$u = -\cos\theta\left\{\frac{(\sin\theta)^4}{5} + \frac{4(\sin\theta)^2}{15} + \frac{8}{15}\right\}$

一三八　$u =$

一三九　$u =$

一四〇　$u = \frac{(\sin\theta\cos\theta)^5}{6} + \frac{1}{8}\sin^3\theta\cos\theta - \frac{1}{16}\sin\theta\cos\theta$

一四一　$u = \left\{\frac{(\cos\theta)^2}{9} + \frac{2}{63}\right\}(\sin\theta)^7$

一四二　$u =$

一四三　$u =$

一四四　$u =$

一四五　$u = a^x\left\{\frac{1}{3x^3} + \frac{1}{2\cdot 3x^2} + \frac{A^2}{2\cdot 3x}\right\} + \frac{A^3}{2\cdot 3}\int\frac{a^x}{x}$

一四六　$u = \frac{a^x}{A\sqrt{x}}\left\{1 + \frac{1}{2xA} + \frac{5}{(2xA)^2} + \frac{3\cdot 7}{(2xA)^3} + \cdots\right\}$

一四七　$u = \frac{x}{x+1}\log x - \log(1+x)$

一四八　$u = \log x\sqrt{1+x}$

一四九　$u = \log\left(\frac{l^x}{l^x+1}\right)$

一五〇　$u = l^x\left(\frac{x-1}{x+1}\right)$

一五一　$u = \frac{-1}{2(\tan\theta)^4} + \frac{1}{2(\tan\theta)^2} + \log(\tan\theta)$

一五二　$u =$

一五三　$u =$

一五四　$u = \frac{\sin^{-1}x}{\sqrt{1-x^2}} + \log\sqrt{\frac{1-x}{1+x}}$

一五五　$u =$

一五六　$u = \frac{x^3+a^3}{3}\tan^{-1}\sqrt{\frac{x}{a}} - \frac{\sqrt{ax}}{3}\left(\frac{x^2}{5} - \frac{ax}{3} + a^2\right)$

一五七　$u =$

一五八　$u =$

一五九　$u = \frac{e^{ax}\cos x(a\sin x + 2\cos x)}{a^2+4} + \frac{2e^{ax}}{a(a^2+1)}$

一六〇　$u = \frac{1}{3}\tan^3\theta - \tan\theta + \theta$

一六一　$u = -\frac{1}{2}\frac{\cos\theta}{\sin\theta} + \frac{1}{2}\log\left(\tan\frac{\theta}{2}\right)$

一六二　$u =$

一六三　$u =$

一六四　$u = \frac{1}{7(\cos\theta)}\left\{(\sin\theta)^2 - \frac{2}{5}\right\}$

一六五　$u =$

一六六　$u = \left\{\frac{1}{2(\cos\theta)^2} - \frac{3}{2}\right\}\frac{1}{\sin\theta} + \frac{3}{2}\log\tan\left(\frac{\pi}{4} + \frac{\theta}{2}\right)$

一六七　$u = -\frac{1}{3\cos\theta(\sin\theta)^2} - \frac{8}{3}\cos 2\theta$

式答之卷

卅一　$u = \frac{a}{24}x^4 + \frac{c}{2}x^2 + c'x + c''$

卅二　$u =$

卅三　$u = bx^4 + \frac{c}{6}x^3 + \frac{c'}{2}x^2 + c''x + c'''$

卅四　$u = \frac{80}{105}x^{\frac{7}{2}} + \frac{c}{2}x^2 + c'x + c''$

卅五　$u = \frac{bx^4}{6} + \frac{cx^3}{6} + \frac{c'x^2}{2} + c''x + c'''$

卅六　$2y^{\frac{1}{2}} = \tan^{-1}x + c$

卅七　$x^2y - 2 = 2cy$

卅八　$(1+x)(1+y) = c$

一七〇　$u = \frac{1}{\sqrt{ab}} \tan^{-1}\left(\sqrt{\frac{b}{a}} \tan\theta\right)$

一七一　$u = \frac{1}{1-e^2} \frac{\sin\theta}{\sqrt{1-e^2\cos^2\theta}}$

一七二　$u =$

一七三　$u =$

一七四

一七五　$u = \left\{1 + A^2 + \left(\frac{A^2}{2}\right)^2 + \left(\frac{A^3}{2.3}\right)^2 + \text{——}\right\} x$

弐巻之七巻弐

弐一

弐二　$z = \frac{x}{2a}\sqrt{(a^2+y^2)} + \frac{a}{2} log\left(\frac{y+\sqrt{(a^2+y^2)}}{a}\right)$

弐三　$z = y\sqrt{2}$

弐四　$s = \frac{n}{n+1} xy$

弐五　$\pi = 3.14159265\cdots\cdots$

弐六　$s = a.b.\pi$

弐七　$s = xy - a.b.log\frac{(ay+bx)}{ab}$

弐八

弐九　$xy^2 = a$

三十　$\frac{x}{y} = \frac{y^2}{2} + y + c$

三一　$y^2 - x^2 = 2axy + c$

三二　$x + \frac{by}{2a} = \frac{(4ay+b^2)^{\frac{3}{2}}}{12a^2} + c$

三三　$y^2 - 2x^2 = 4y^{\frac{2}{3}}$

三四　$y^2 x = (2y + x)a^2$

三五　$log x = -\frac{1}{x} + c = -\frac{x}{y} + c$

九

十

十一 $Z = z + \frac{zp}{2.3} + \frac{9zp^2}{2.2.4.5} + \frac{9.2.5zp^3}{2\,3\,4\,5\,6\,7} + \cdots\cdots \frac{z^2}{\pi^2} = p$

十二 $\zeta = m$

十三 $\zeta = y + ax$

十四 $\zeta = a^2 + b^2 + ax + \log ab$

十五 $\zeta =$

十六 $\zeta =$

十七 $\zeta = \log ab + ab + \frac{n}{2} ab$

十八 $\zeta = M$

十九 $\zeta = \frac{x^2}{2} + \frac{x^4}{4}$

二十 $\zeta = \frac{a^2}{3}$

二十一 $\zeta = \frac{2zp}{2.3} + \frac{7zp^3}{2.3.4.5} + \frac{3.3.5\,7zp^3}{2\,3.4.5\,6\,7} + \cdots$

式卷八之卷

一　$S = -\frac{a^2}{at}$

二　$S = 2\pi bh$

三　$S = 4\pi R^2$

四　$S = \frac{2\pi}{3f}\left((R^2+x^2)^{\frac{3}{2}} + f^3\right)$

五　$S' = \frac{6\pi}{3}\pi r^2$

六　$V = (\pi r^2 - r)\frac{1}{3}$

七　$V = \frac{2}{3}\pi b^2 \times 2a$

八　$V = \frac{n}{n+2}\pi y^2 x$

九　$V = \frac{1}{2}\pi x^2 y^2 x$

十　$V = \frac{5}{2}\pi^3 x^2$

式卷十之卷

一　$A = a^2\left(\tan\frac{\theta}{2} + \frac{1}{3}\tan^3\frac{\theta}{2}\right)$

二　$A = \frac{3}{2}a^2$

三　$A = \frac{3ab}{8}\frac{\pi}{4}$　$\therefore 4A = \frac{3}{8}\pi\frac{(a^2-b^2)^2}{ab}$

四　$V = \frac{4}{3}\pi a^3$

五　$V = \pi b^2\left\{\frac{\pi a}{2} + \frac{2b}{3}\right\}$

六 $V = \pi^2 a^3$

七 $V = \frac{8}{15}\pi a^2 b$

八 $s =$

九 $s = 4ab\pi^2$

十 $z = 6a$

十一 $A = a\sqrt{y^2 - a^2}$

十二 $A = ab + (a^2 - b^2)\tan^{-1}\left(\frac{a}{b}\right)$

十三 $s = 4a^2 = s'$

$V = \frac{16}{3}a^2$

十四
面積 $= \left(\frac{\pi}{2} - 1\right)4r^2 = (2\pi - 4)r^2$
体積 $= 4r^2\frac{\pi}{4}\sqrt{2} = r^2\pi\sqrt{2}$
内面積 $= \left(\frac{\pi}{4} - \frac{1}{3}\right)8r^3$

十五 面積 $= \sqrt[3]{\left(1 - \frac{\pi}{4}\right)V}$

十六
側面積 $= 2rh$
截実積 $= \frac{4}{3}r^2 h$
截面積 $= \left(\sqrt{4r^2 + h^2}\right)r$

十七
左右実積 $= \left(\frac{4b^2}{3c} + c\right)bh\frac{1}{4}$
左右面積 $= \left(\frac{2b^2}{c} + \frac{c}{2}\right)h$

十八
馬面積 $= \left(\sqrt{4r^2+a^2} - a\right) r$
黒体積 $= \left(\frac{1}{r}\left(16r^2+a^2\right) - a\right)\frac{4r^2}{a}$
白面積 $= \left(\left(\sqrt{4r^2+a^2}\right)\frac{1}{2} - \frac{\pi a}{4}\right) 2r$　$\sqrt{4r^2+a^2}=p$
白体積 $= 3\sqrt{4r^2+a^2} \div \left(4r^2+\sqrt{4r^2+a^2}\right), -\frac{\pi}{2} a r^2$

十九
太面積
太実積

二十
太面積
太実積
内面積

二十一
太面積
太実積
内面積

二十二
面積 $= 4\left(\sqrt{8}-2\right) r^2$
実積 $= 8\left(\sqrt{2}-\frac{2}{3}\right) r^3$
内面積 $= \sqrt{8}\cdot 4 r^2$

二十三
偏面積 $= \left(\frac{4a^2}{2r} + 2r\right) r$

二十四
等面積 $= \left(\frac{1}{\pi}(2r+b) - b\right) 2r\pi$

二十五
面積