Assignments of Chapter 18

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1 18.1

2 18.2

(1)

$$\int_{\Sigma}\frac{d\sigma}{(1+x+y)^2}=\int_{\Sigma_1}\frac{d}{(1+x+y)^2}+\int_{\Sigma_2}\frac{d}{(1+x+y)^2}+\int_{\Sigma_3}\frac{d}{(1+x+y)^2}+\int_{\Sigma_4}\frac{d}{(1+x+y)^2}=\int_0^1 dx\int$$

3 18.3

$$\int_{\Sigma}\boldsymbol{F}(x,\ y,\ z)d\boldsymbol{\sigma}\ =\ \iint\boldsymbol{F}\ =\iint(P\circ r,\ Q\circ r,\ R\circ r)\ =\ \int\int_{\Sigma}Pdydx\ +\ Qdxdz\ +\ Rdxdy\ =$$

$$\pm\int\int_{Dx\times y}\boldsymbol{F}\circ\boldsymbol{r}\cdot(\boldsymbol{r_u}\times\boldsymbol{r_v})dudv$$

$$\boldsymbol{n}d\sigma=\pm(\boldsymbol{r_u}\times\boldsymbol{r_v})dudv$$

1.(1)

$$=\frac{1}{3}\int\int_{\Sigma}x^4$$

1.(2)

$$\int\int_{\Sigma}(xz,yz,x^2)\cdot\Big(\frac{x}{a},\frac{y}{a},\frac{z}{a}\Big)d\sigma=\frac{1}{a}\iint(x^2z+y^2z+x^2z)d\sigma=0$$

1.(3)

$$=\int_{\Sigma}(f(x)\cos\alpha)$$

1.(4)

$$x=\text{asin}$$

1.(5)

$$\int\int_{\Sigma}(y-z,z-x,x-y)\frac{1}{\vee 2}\Big(\frac{x}{\vee(x^2+y)},\frac{y}{(x)},1\Big)dxdydz=\frac{1}{2^{0.5}}\int\int_{Dxy}(y-x)$$

1.(6)

$$\boldsymbol{n_1}=\cdot$$

4 18.4 Gauss Formula and Stokes Formula

3.

Prove: