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一、重要公式
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1. 二项展开式 (a+b) = a"+Cha"b+Cha"b+Cha"2b2+... +b"

L 七勺值不等式  $\eta_{a,a_1\cdots a_n} \leq \frac{a_1 + a_2 + \cdots + a_n}{n}$ 

3. Cauchy不等式 (a,b,+… +anbn)2 ≤ (a,2+…+an)(b,2+…+bn)

等号在(a,,a,,,,an)和(b,,b2,,,bn)成比例时成立。(柯西)

4. Bernoulli (伯努利不等式 (1+a,)(1+a2)--(1+an)=1+a,+a2+--+an

5. 和差化积石式 sina+sinβ=2sin of cos and (ルナル=21中哥)

 $\cos x = \frac{1 - \tan^{\frac{1}{2}}}{1 + \tan^{\frac{1}{2}}} \qquad \sin \alpha - \sin \beta = 2\cos \frac{\alpha + \beta}{2} \sin \frac{\alpha - \beta}{2} \quad (1) + \sin \beta = 2\sin \beta = 2\cos \beta = 0$ 

S'ux = Ztanne Cosa + Cosp = 2 Cos of Cos of (哥+哥=2哥哥)

COJ3 X=4cosiX-3cox COSA-COSB = -2sin蝶sin蝶(哥-哥=交蝮蝮)

6.积化和差公式

sindcosp = \frac{1}{2} [sin(\alpha+\beta)+sin(\alpha-\beta)]

Cosasing = { [sin(a+B) - sin(a-B)]

COSO COSP= 左[WS(d+B)+COS(d-B)]

sindsing = - \(\frac{1}{2}\) Ecos (\(\alpha + \beta\) - cos (\(\alpha - \beta\)]

7,二角和差公式: sin(d+B)= sind COJB + cOJd sinB

COS(d+f) = COSO(COSF- Sind Sinf

8、松界公式

 $(x^n)' = n x^{n-1} \quad (x)' = 1 \quad (e^x)' = e^x$ 

(ax)'= axlna (lnx)'= to (logax)'= xlna

9.  $a^n - b^n = (a - b)(a^{n-1} + a^{n-1}b + \cdots + b^{n-1})$ 

fttx,7=X fcf(x)=X 二.江号与约定

1. 于的反函数于7

2. fx,在点a的右极限 fiat)=lim fx, fx,在点a的左极限f(a-)=lim tx,

3. tx,在点a的右导数 fia.

ta,在点a的左手数扩(a)

4. 定数集A的上确界(最小的上界) SUPA 实数集A的下确界(最大的下界) infA

5. n的所能 n! (3!=3.2.1 0!=1)

n的双阶维 n!! (5!!=5·3·1,6!!=6·4·2)

6.  $C_n = \frac{n \cdot (n-1)}{k \cdot (k-1)}$ 

7. 东切函数 cotx=tanx 正割函数 secx = tosx

余割函数 CSCX = stinx

双曲正弦函数 sinhx= ex-ex

双曲条弦函数  $coshX = \frac{e^{X}+e^{-X}}{2}$ 

sinh(x±y)=sinhx coshy ± coshx sinhy

cosh(x ± y) = coshx coshy ± sinhx sinhy

sinhex = 2 sinh x coshx , coshex = 2 coshex-1

 $\cosh' x - \sin h x = 1$ 

D X3+y3+23-3xy2=(x+y+2)(x+y+2-xy-yz-xz) (tanx)'= dos'x (Cotx)'= - sin2x (Secx)' = Secxtanx (Cscx)' = -cscxcotx(arcsinx)'= 1= = - (arccax)' (arctanx/= 1+x' = -carccotx) tanix = Jsinix -1  $\left(\frac{1}{\cos^2 x} = 1 + \tan^2 x\right)$ (sinhx)' = cashx (coshx/= sinhx ① 水极限有关的公式,与规则 lim (dX+ Byn) = dlim Xn+ Plime Yn lim Ja =1 (0>0) lim Xnyn = lim Xn lim Yn 1:m 7/n =1 lim n - ~ = 0 (a>0) lim Janto = max {a,b} lim Fx, = "Tim fx, lim Tigo, = T(lim ge) lim (1+ 5) = e Sinx =1 lim ax = lna U+x12-1 = X lim 12+22+32 +. . + n3=  $y^3 + 2^3 + 3^3 + \dots + \eta^3 = \frac{\eta^2(n+1)}{4}$