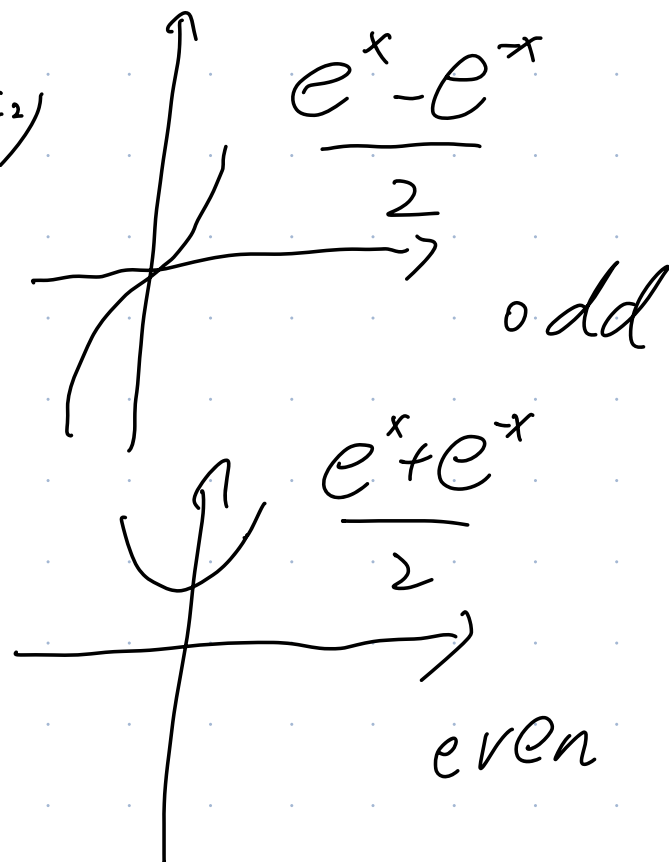
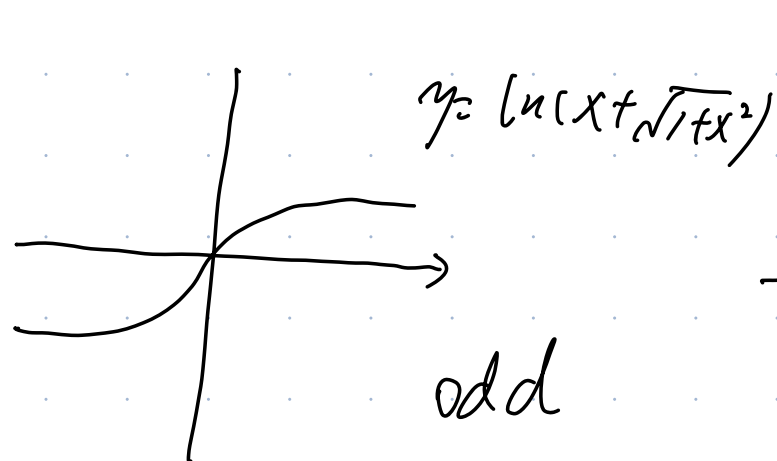


加项减项, 变形
往学过的形式凑

反函数

$$\begin{cases} y = f(x) \\ || \text{相等} \\ x = f^{-1}(y) \end{cases}$$

$$\begin{cases} y = f(x) \\ || \text{反函数} \\ y = f^{-1}(x) \end{cases}$$



limit { 唯一
有界
保号 $\lim_{x \rightarrow \cdot} f(x) = A \quad f(x) = A + \alpha \quad \lim_{x \rightarrow \cdot} \alpha = 0$

多元微分

1. 微分(单变量函数)

$$dy = f'(x)dx$$

全微分(多变量函数)

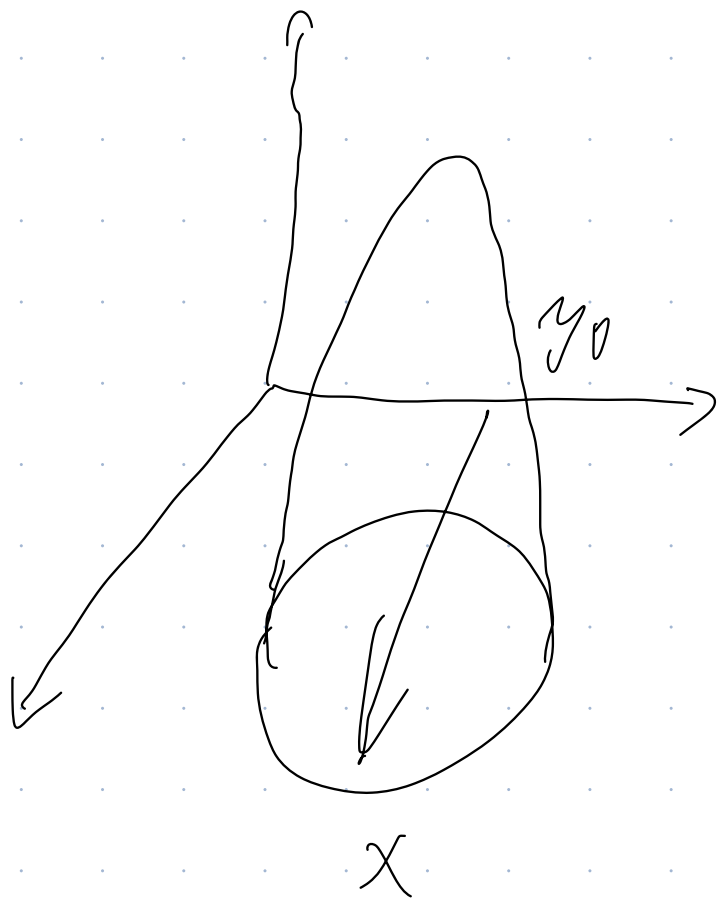
对于 $z = f(x, y)$

$$dz = \frac{\partial z}{\partial x} dx + \frac{\partial z}{\partial y} dy$$

definition:

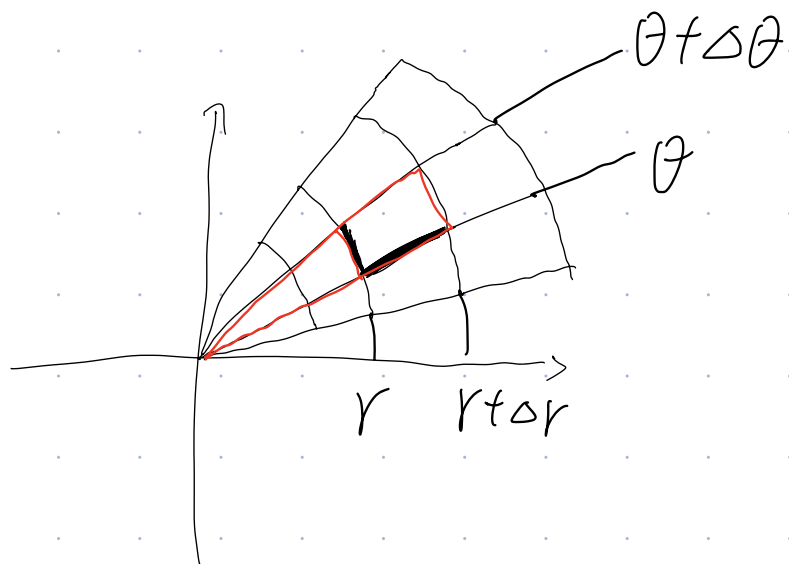
$$dz = \lim_{\substack{x \rightarrow x_0 \\ y \rightarrow y_0}} \frac{f(x, y) - f(x_0, y_0) - \frac{\partial z}{\partial x}(x - x_0) - \frac{\partial z}{\partial y}(y - y_0)}{\sqrt{(x - x_0)^2 + (y - y_0)^2}}$$

2. 偏导数 (只对 x 或 y 方向的导数)



对 x 求偏导
则 y 不变

二重积分



$$\therefore \int_{\text{扇}} \dot{r} = \frac{1}{2} r^2 \theta$$

$$\therefore \Delta G = \int_{\text{大扇}} - \int_{\text{小扇}}$$

$$= \frac{1}{2} [(r + \Delta r)^2 \Delta \theta - r^2 \Delta \theta]$$

$$= \frac{1}{2} \Delta \theta [2r\Delta r + \Delta r^2]$$

$$\approx \frac{1}{2} \Delta \theta \cdot 2r\Delta r$$

$$= r \Delta r \Delta \theta$$

向量代数与几何

无穷级数

级数敛散性