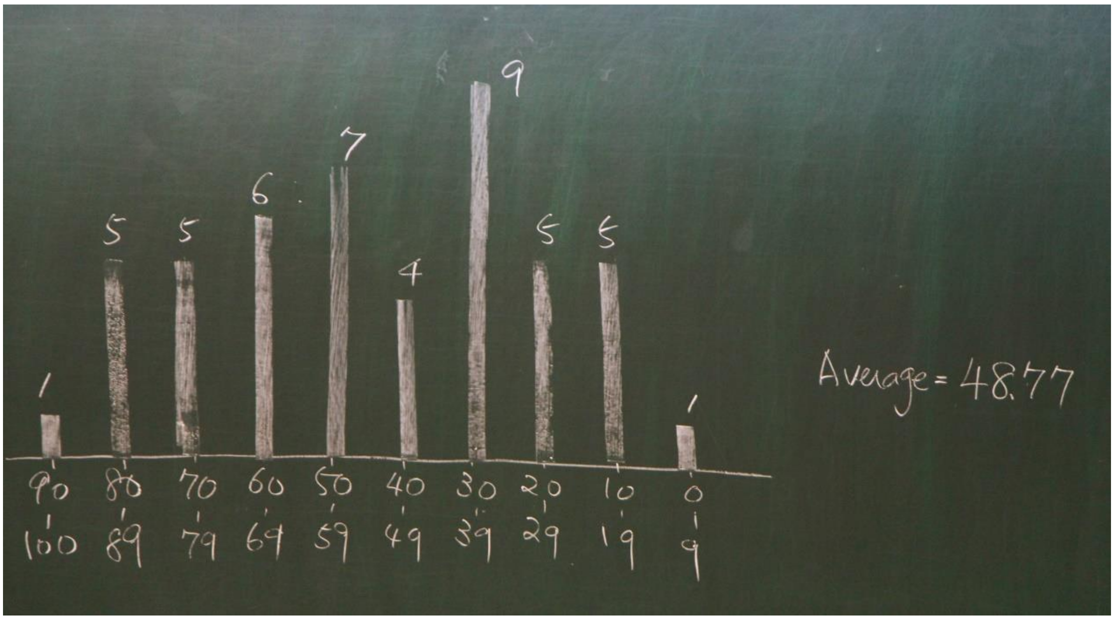
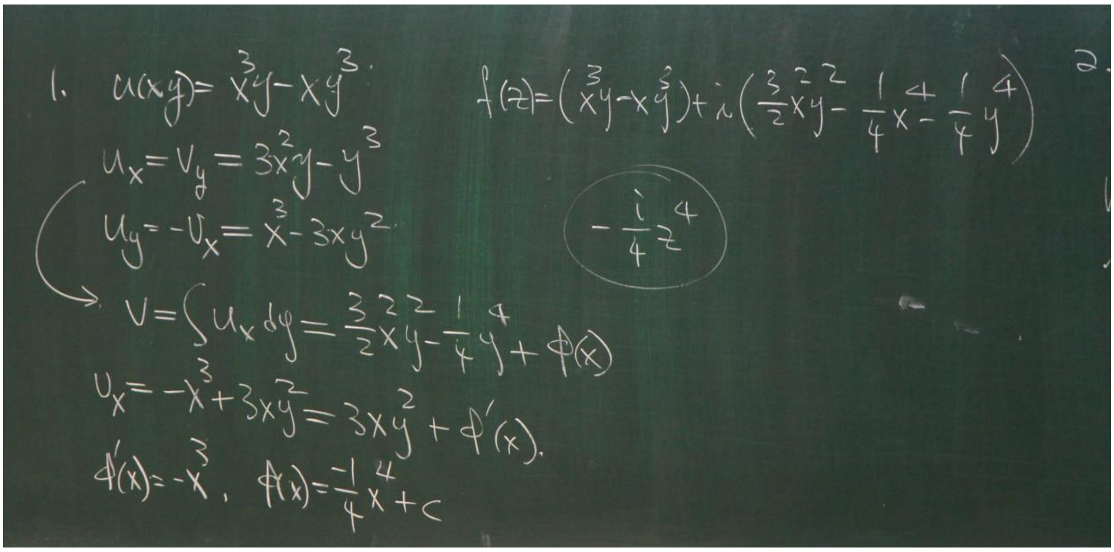
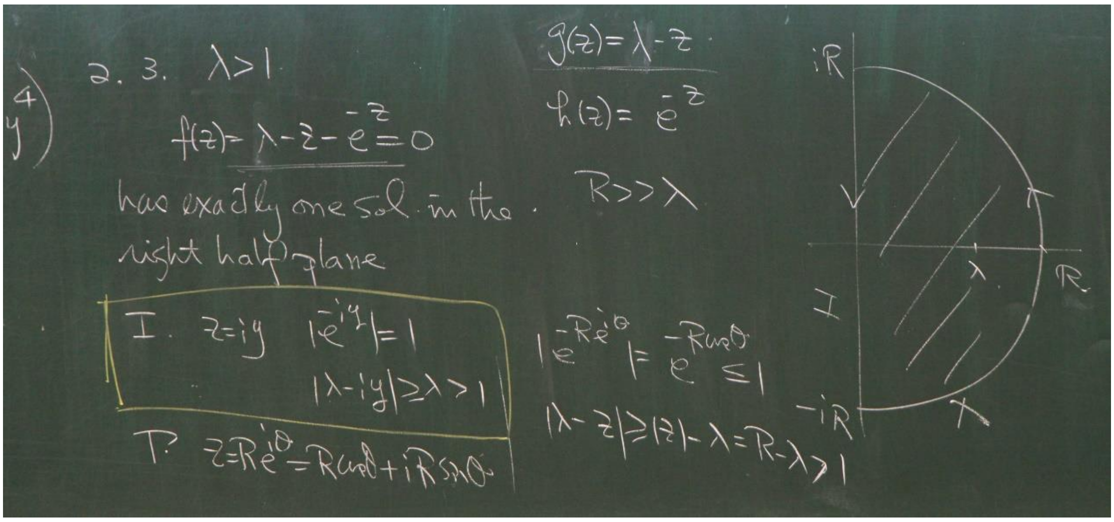
【10920 程守慶教授複變數函數論 / 第 20 堂版書】

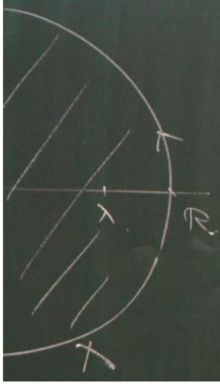


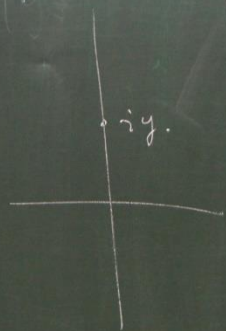




$f(z) = 2 + z$.

$g(z) = -e^{z}$



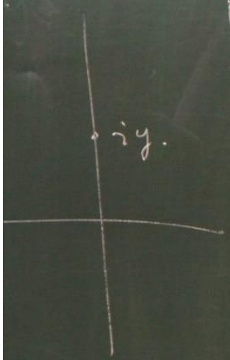


$$|f(iy)| = |2 + iy| \geq 2$$

$$|g(iy)| = |e^{iy}| = 1.$$

$$f(z) + g(z) = 2 + z - e^{z}$$

$$f(z) = 2 + z$$



$$|f(iy)| = |2 + iy| \geq 2$$

$$|g(iy)| = |e^{iy}| = 1.$$

$$f(z) + g(z) = 2 + z - e^{z}$$

$$f(z) = 2 + z$$

$$2 + x - e^{x} = h(x).$$

$$h(0) = 2 + 0 - 1 = 1.$$

$$\lim_{x \to \infty} (2 + x - e^{x}) = -\infty$$

$h(c) = 0$, $0 < c < \infty$

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$$\lim_{x \to \infty} (2 + x - e^{x}) = -\infty$$

$h(c) = 0$, $0 < c < \infty$

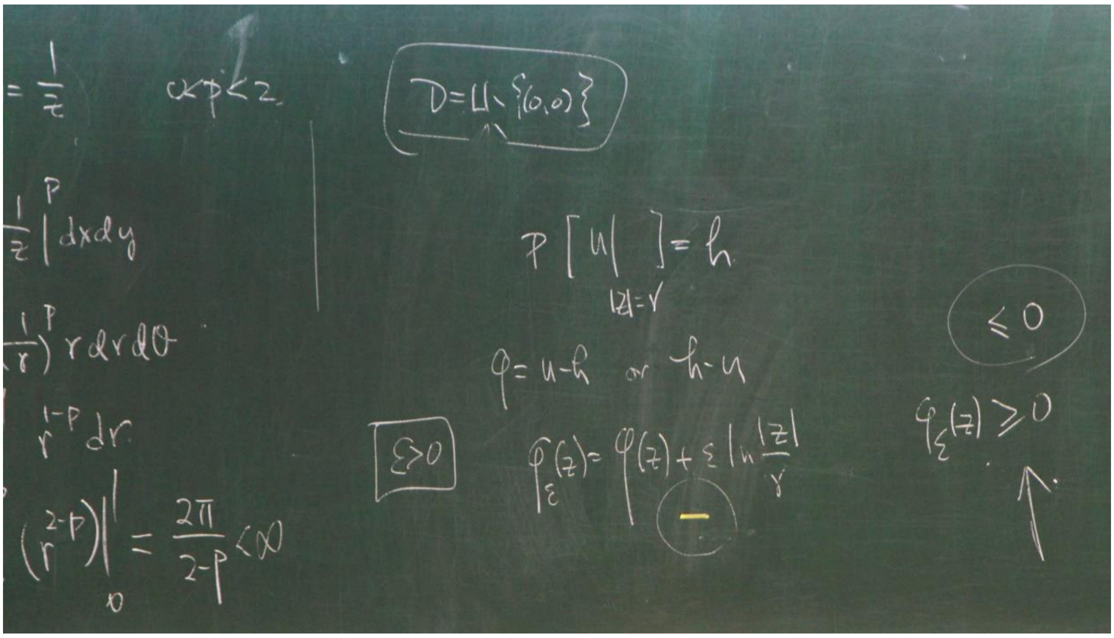
4. $f(z) = \frac{1}{z}$ $\quad 0 < p < 2$.

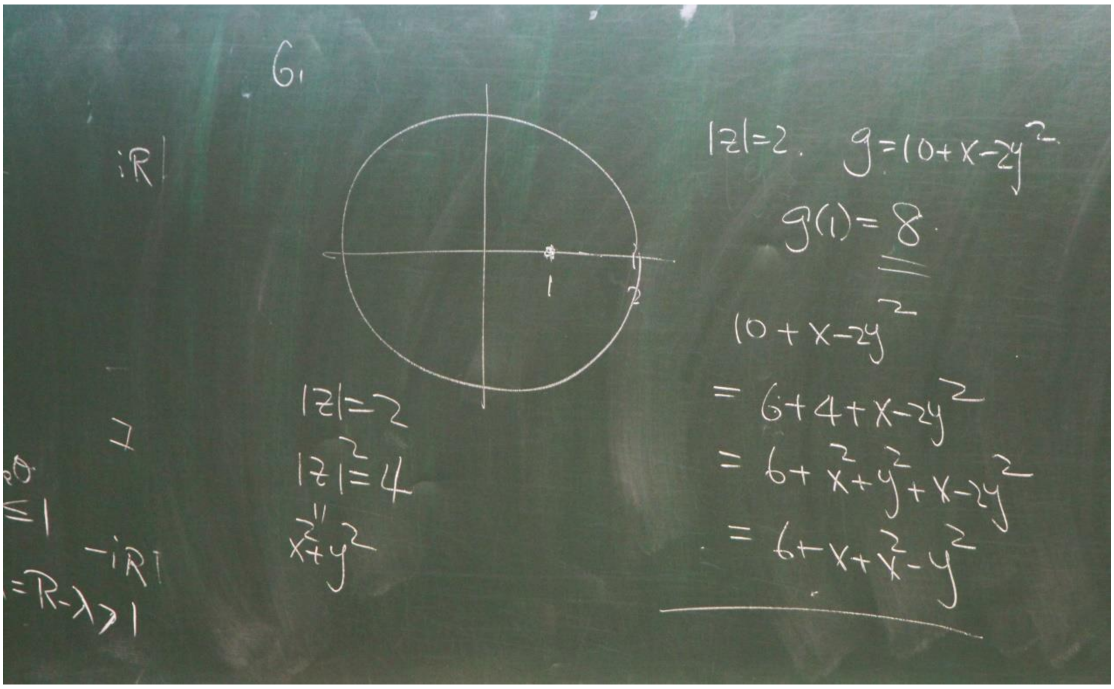
$$\iint \left|\frac{1}{z}\right|^{p} dx\,dy$$

$$= \iint \left(\frac{1}{r}\right)^{p} r\,dr\,d\theta$$

$$= 2\pi \int_{0}^{1} r^{1-p}\,dr$$

$$= \frac{2\pi}{2-p} \left(r^{2-p}\right)\Big|_{0}^{1} = \frac{2\pi}{2-p} < \infty$$


0<p<2
D=U∖{(0,0)}
P[u|]=h
|z|=r
φ=u-h or h-u
ε>0
φ_ε(z)=φ(z)+ε ln |z|/r
≤0
φ_ε(z)≥0
r dr dθ
dx dy
2π/(2-p)<∞


6.
iR
1
2
|z|=2
|z|²=4
x²+y²
-iR
=R-λ>1
|z|=2. g=10+x-2y²
g(1)=8.
10+x-2y²
=6+4+x-2y²
=6+x²+y²+x-2y²
=6+x+x²-y²