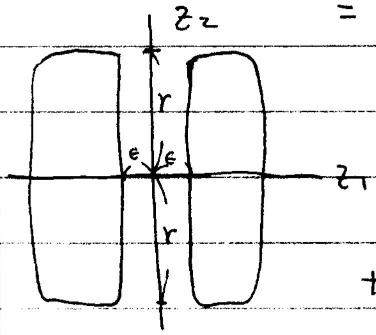
$$= \lim_{\epsilon\to 0} \int_{\Delta^2 - \Delta\times\Delta(\epsilon)} \overset{d}{\overset{\|}{\partial}}\left((\log \bar z_2)\,\psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2\right) - \underbrace{\cancel{\partial(\log \bar z_2)}}_{0}\wedge\psi\, dz_2\wedge d\bar z_2$$

$$\overset{\Uparrow}{=} \lim_{\epsilon\to 0} \int_{\partial(\Delta^2 - \Delta\times\Delta(\epsilon))} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_{1+1}$$

by Stokes' theorem

$$= \lim_{\epsilon\to 0} \int_{\partial(\Delta\times\Delta - \Delta\times\Delta(\epsilon))} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2$$



$$= \lim_{\epsilon\to 0} \int_{\partial(\Delta\times(\Delta - \Delta(\epsilon)))} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2$$

$$= \lim_{\epsilon\to 0} \int_{\partial\Delta\times(\Delta - \Delta(\epsilon))} \log \bar z_2\ \underbrace{\cancel{\psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2}}_{=0}$$

$$+ \lim_{\epsilon\to 0} \int_{\Delta\times\partial(\Delta - \Delta(\epsilon))} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2$$

$$= \lim_{\epsilon\to 0} \int_{\Delta\times\partial(\Delta - \Delta(\epsilon))} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2 \quad (\text{since } \operatorname{supp}\psi\subset\Delta^2)$$

$$= \lim_{\epsilon\to 0} \int_{\Delta\times\partial\Delta - \Delta\times\partial\Delta(\epsilon)} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2 \quad (\qquad '' \qquad)$$

$$= -\lim_{\epsilon\to 0} \int_{\Delta\times\partial\Delta(\epsilon)} \log \bar z_2\ \psi\, dz_2\wedge d\bar z_1\wedge d\bar z_2$$

$$= -\lim_{\epsilon\to 0} \int_{\Delta} \left(\int_{\partial\Delta(\epsilon)} \log \bar z_2\ \psi\, dz_2\right)\wedge d\bar z_1\wedge d\bar z_2 .$$

$$\Rightarrow \int_{\partial\Delta(\epsilon)} \log \bar z_2\ \psi\, dz_2 = \int_0^{2\pi} (\log\epsilon + i(-\theta))\,\psi(\epsilon e^{i\theta})\,\epsilon\, i\, e^{i\theta}\, d\theta$$