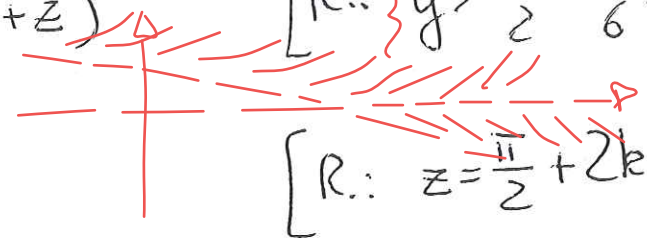
ESERCIZI SUI NUMERI COMPLESSI

1) $\frac{1}{4}\frac{\mathrm{Re}\left[(\bar{z}+z)^2\right]}{\mathrm{Re}\,z} > 1 + \mathrm{Re}\left(\frac{z-\bar{z}}{3i}\right)$ [R.: $x > 1 + \frac{2}{3}y$]

2) $|z|^2 - z + i = \mathrm{Im}(z) + i\,\mathrm{Re}(z)$ [R.: $(0,1)$; $(1,0)$]

3) $\frac{\mathrm{Re}\left[(z-\bar{z})^2\right]}{\mathrm{Im}\,z} + 2 < \frac{1}{3}\mathrm{Re}\,(z+\bar{z})$ [R.: $\{y \neq 0\} \cap \{y > \frac{1}{2} - \frac{1}{6}x\}$]



4) $e^{iz} = i$ [R.: $z = \frac{\pi}{2} + 2k\pi$]

5) $z^2 - \mathrm{Arg}\,z = z\bar{z}$ (attenzione!) [R.: $\left\{\begin{matrix} y=0 \\ x \geq 0 \end{matrix}\right\} \cup \left(0, -\frac{\sqrt{\pi}}{2}\right)$

6) $e^{\bar{z}} = i$ [R.: $z = i\left(\frac{\pi}{2} + 2k\pi\right)$]

7) $\cos(iz) = \mathrm{sen}(iz)$ [R.: $\left(0, -\frac{\pi}{4} + k\pi\right)$]

8) $z^2 + i\,\mathrm{Arg}\,z + (\mathrm{Im}\,z)^2 = 0$ [R.: $(0,0)$]

9) $|z|\,\mathrm{Re}\,(iz) = z + \mathrm{Arg}\,z$ [R.: $(0,0)$; $(-\pi,0)$]

10) $|z - i| = 3z - 2i$ [R.: $\left(\frac{1}{6\sqrt{2}}, \frac{2}{3}\right)$]

11) $z^2 + 2\bar{z} = 2$ [R.: $(1, \pm 1)$; $(-1 \pm \sqrt{3}, 0)$]

12) $z^2 + z\cdot\bar{z} - 2 + i = 0$ [R.: $\left(1, -\frac{1}{2}\right)$; $\left(-1, \frac{1}{2}\right)$]