Gabarito Lista de Exercícios 1

① (a) $2+i$

(b) $-(1+i\sqrt{3})/2$

③ $\{e^{i\pi/8}, e^{3i\pi/8}, e^{5i\pi/8}, e^{7i\pi/8}, e^{9i\pi/8}, e^{11i\pi/8}, e^{13i\pi/8}, e^{15i\pi/8}\}$

④ $\{e^{\pm i\pi/9}, e^{\pm 7i\pi/9}, e^{\pm 13i\pi/9}\}$

⑤ (a) $\mathbb{C}\backslash\{\sqrt{3}\pm i\}$

(b) $\{0, -\sqrt{3}-i\}$

(c) $(-1+4i\sqrt{3})/7$

⑥ $\{\ln(2n\pi)+ik\pi\,;\, n\in\mathbb{N}^*,\, k\in\mathbb{Z}\}$

⑦ $\{\frac{1}{2}\ln 2 + i(8n+1)\pi/4\,;\, n\in\mathbb{Z}\}$

⑧ $D=\mathbb{C}\backslash\{i(2n+1)\pi/2\,;\, n\in\mathbb{Z}\}$
Raízes $=\{\ln(\sqrt{2}-1)+i(4n+1)\pi/2,\, \ln(\sqrt{2}+1)-i(4n+1)\pi/2\,;\, n\in\mathbb{Z}\}$

⑨ (a) $\mathbb{C}\backslash\{\pm 1, \pm(1+i\sqrt{3})/2, \pm(1-i\sqrt{3})/2\}$

(b) $\{(4n-1)i\pi/4\,;\, n\in\mathbb{Z}\}$;

(c) $u(x,y)=\frac{1}{4}\ln\left[\frac{(x^3-3xy^2+1)^2+(3x^2y-y^3)^2}{(x^3-3xy^2-1)^2+(3x^2y-y^3)^2}\right]$

(d) $f^{-1}(z)=[\coth(z)]^{1/3}$