ANA Ü1

7.) ges: $\sqrt[6]{1}$ in Polarkoordinaten und Real- und Imaginärschreibweise

$1+0i = (1,0)$ $\qquad \sqrt[6]{1} = (1, \frac{2\pi}{6} \cdot k) \quad k \in \mathbb{Z}$

$\Rightarrow (1,0), (1,\frac{\pi}{3}), (1,\frac{2\pi}{3}), (1,\pi), (1,\frac{4\pi}{3}), (1,\frac{5\pi}{3})$ Lösungen in Polarkoordinaten

$(1,0) = 1$ $\qquad (1,\frac{\pi}{3}) = \frac{1}{2} + i\frac{\sqrt{3}}{2}$

$(1,\frac{2\pi}{3}) = -\frac{1}{2} + i\frac{\sqrt{3}}{2}$ $\qquad (1,\pi) = -1$

$(1,\frac{4\pi}{3}) = -\frac{1}{2} - i\frac{\sqrt{3}}{2}$ $\qquad (1,\frac{5\pi}{3}) = \frac{1}{2} - i\frac{\sqrt{3}}{2}$

$w = r \cdot (\cos(t) + i\sin(t))$

$\frac{1}{2} + i\frac{\sqrt{3}}{2} = 1 \cdot (\cos(\frac{\pi}{3}) + i\sin(\frac{\pi}{3}))$

$\Rightarrow \cos(\frac{\pi}{3}) = \frac{1}{2}$ $\qquad \sin(\frac{\pi}{3}) = \frac{\sqrt{3}}{2}$