$\sqrt[m]{1} = v \iff v^m = 1$

$v = r(\cos\alpha + i\,\mathrm{sen}\alpha)$

$[r(\cos\alpha + i\,\mathrm{sen}\alpha)]^m = \cos\theta + i\,\mathrm{sen}\theta$

$r^m(\cos m\alpha + i\,\mathrm{sen}\,m\alpha) = (\cos\theta + i\,\mathrm{sen}\theta)$

$\begin{cases} r^m = 1 \Rightarrow r = 1 \\ m\alpha = \theta + 2\pi k \end{cases} \quad \begin{cases} r = 1 \\ \alpha = \dfrac{2k\pi}{m} \end{cases} \quad k \in \mathbb{Z}$

$v = \cos\dfrac{2k\pi}{m} + i\,\mathrm{sen}\dfrac{2k\pi}{m}, \quad k \in \mathbb{Z}$

$m=2$ $\sqrt[2]{1} = \pm 1$

$k=0$ $\cos 0 + i\,\mathrm{sen}0 = 1$

$k=1$ $\cos\dfrac{2\cdot\pi}{2} + i\,\mathrm{sen}\dfrac{2\pi}{2} = -1$

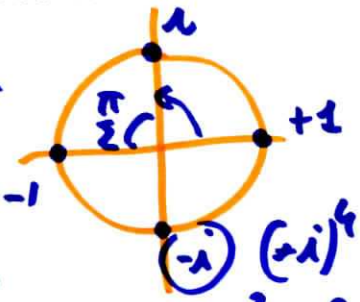
$\dfrac{2\pi}{m=2} = \pi$

$k=2$ ± 1

$k=3$ -1

$k=-1$ -1

$\sqrt[4]{1}$ $\dfrac{2\pi}{4} = \dfrac{\pi}{2}$



$(-i)^4$

$(-i)^2(-i)^2$

$i^2\ i^2$

$(-1)(-1) = +1$

$\sqrt[3]{1}$ $m=3$

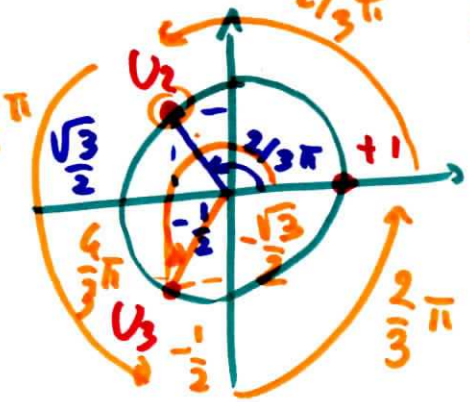
$k=0$ $v_1 = \cos\dfrac{2\cdot 0\pi}{3} + i\,\mathrm{sen}(\ ) = 1$

$k=1$ $v_2 = \cos\dfrac{2\cdot 1\pi}{3} + i\,\mathrm{sen}\dfrac{2}{3}\pi = -\dfrac{1}{2} + i\dfrac{\sqrt{3}}{2}$

$k=2$ $v_3 = \cos\dfrac{2\cdot 2\pi}{3} + i\,\mathrm{sen}\dfrac{4}{3}\pi = -\dfrac{1}{2} - i\dfrac{\sqrt{3}}{2}$

$k=3$ $v_4 = \cos\dfrac{2\cdot 3\cdot\pi}{3} + i\,\mathrm{sen}\,2\pi = 1$

$m=3$



$v_2^2 = \left[\left(-\dfrac{1}{2}\right) + i\dfrac{\sqrt{3}}{2}\right]^2 =$

$= \dfrac{1}{4} + 2\cdot\dfrac{1}{2}\dfrac{\sqrt{3}}{2}i + \left(-\dfrac{3}{4}\right) =$

$= \left(-\dfrac{1}{2} - \dfrac{\sqrt{3}}{2}i\right)$

$v_2^2 \cdot v_2 = v_2^3$

$\left(-\dfrac{1}{2} - \dfrac{\sqrt{3}}{2}i\right)\left(-\dfrac{1}{2} + \dfrac{\sqrt{3}}{2}i\right) = \left(-\dfrac{1}{2}\right)^2 - \left(\dfrac{\sqrt{3}}{2}i\right) = \dfrac{4}{4} = 1$

$a - b \qquad a + b$

$\dfrac{1}{4} \quad \left(\dfrac{3}{4}(-1)\right)$

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