

RAC. CARREES D'UN COMPLEXE z

RCC(z)

$$\boxed{\text{RCC}(2 - 2\sqrt{3}i)}$$

$$\left\{ \begin{array}{l} \pi_1 = \frac{1}{2} + \frac{1}{2}i \\ \pi_2 = -\pi_1 \end{array} \right.$$

$$\begin{array}{l} \sqrt{2 - 2\sqrt{3}i} \\ \hline (x + yi)^2 \\ = 2 - 2\sqrt{3}i \end{array}$$

$$(x+yi)^2 = 2-2\sqrt{3}i$$

$$(x^2-y^2) + (2xy)i = 2-2\sqrt{3}i$$

$$\begin{cases} x^2-y^2=2 \\ 2xy=-2\sqrt{3} \end{cases}$$

$$\begin{cases} x^2-y^2=2 \\ xy=-\sqrt{3} \end{cases}$$
$$y = -\frac{\sqrt{3}}{x}$$

$$x^2 - \left(-\frac{\sqrt{3}}{x}\right)^2 = 2$$

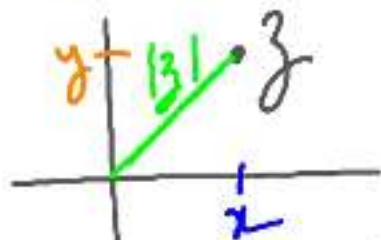
$$x^4 - 3 = 2x^2 \text{ or } x^4 - 2x^2 - 3 = 0$$

$$\begin{cases} x^2 - y^2 = 2 \\ xy = -\sqrt{3} \end{cases}$$

$$(x+yi)^2 = 2 - 2\sqrt{3}i \Rightarrow | \dots | = | \dots |$$

$$x^2 + y^2 = \sqrt{(2)^2 + (-2\sqrt{3})^2} \leftrightarrow |z^2| = |z|^2$$

si $z = x+yi$ al. $|z| = \sqrt{x^2 + y^2} \in \mathbb{R}$
le module de z



$$x^2 + y^2 = 4$$

$$\begin{cases} x^2 - y^2 = 2 \\ x^2 + y^2 = 4 \end{cases}$$

$$\begin{matrix} d_1 \\ d_2 \end{matrix}$$

$$\begin{cases} x^2 = 3 \\ y^2 = 1 \end{cases}$$

$$\begin{matrix} x = \pm\sqrt{3} \\ y = \pm 1 \end{matrix}$$

$$x \cdot y = -\sqrt{3}$$

$$\begin{aligned} \rightarrow x = \sqrt{3} \text{ et } y = -1 \\ \rightarrow x = -\sqrt{3} \text{ et } y = 1 \end{aligned}$$

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

$$\begin{aligned} d_2 + d_1 & \quad 2x^2 + 0y^2 = 6 \\ d_2 - d_1 & \quad 0x^2 + 2y^2 = 2 \end{aligned}$$

Soit $z = x + yi$, alors :

$$z = 3 - 4i$$

• si $y > 0$ alors $r_1 = \sqrt{\frac{|z|+x}{2}} + i\sqrt{\frac{|z|-x}{2}}$ et $r_2 = -r_1$

• si $y < 0$ alors $r_1 = -\sqrt{\frac{|z|+x}{2}} + i\sqrt{\frac{|z|-x}{2}}$ et $r_2 = -r_1$

$$\operatorname{Re}(3 - 4i) = 3$$

$$\operatorname{Im}(3 - 4i) = -4 < 0$$

$$|z| = |3 - 4i| = \sqrt{3^2 + (-4)^2} = 5$$

$$r_1 = -\sqrt{\frac{5+3}{2}} + i\sqrt{\frac{5-3}{2}}$$

$$= -2 + i$$

l'autre racine carrée est

$$2 - i$$

$$\begin{aligned} & \cancel{(-\sqrt{3} + i\sqrt{2})^2} \\ & = \cancel{3 - 2 - 2\sqrt{3}\sqrt{2}i} \end{aligned}$$

$$\begin{aligned} (-2 + i)^2 &= 4 - 1 - 4i \\ &= 3 - 4i \end{aligned}$$