

$$Z = 2 + i$$

opposé

$$a) -Z = -2 - i$$

$$\operatorname{Re}(-Z) = -2$$

$$\operatorname{Im}(-Z) = -i$$

conjugué

$$b) \bar{Z} = 2 - i$$

inverse

$$c) \frac{1}{Z} \Rightarrow \frac{1}{2+i} = \frac{1 \times (2-i)}{(2+i)(2-i)}$$

$$= \frac{2-i}{4-i^2} = \frac{2-i}{4-(-1)} = \frac{2-i}{5} = \frac{2}{5} - \frac{i}{5}$$

$$d) z = 2 + i$$

$$z^2 = (2 + i)^2$$

$$z^2 = 2 \times i^2$$

$$z^2 = 2^2 + 2 \times 2 \times i + i^2$$

$$= 4 + 4i + (-1)$$

$$= 3 + 4i$$

$$(a+b)^2 = a^2 + 2ab + b^2$$

$$Z = \sqrt{3} + 3i$$

$$a = \sqrt{3}$$
$$b = -3$$

$$|Z| = \sqrt{a^2 + b^2}$$

$$|Z| = \sqrt{\sqrt{3}^2 + 3^2}$$

$$Z = |Z| (\cos \theta + i \sin \theta)$$

$$|Z| = \sqrt{(\sqrt{3})^2 + (-3)^2}$$

$$Z = \sqrt{12} \left(\frac{\sqrt{3}}{\sqrt{12}} + i \frac{-3}{\sqrt{12}} \right)$$

$$|Z| = \sqrt{3 + 9}$$

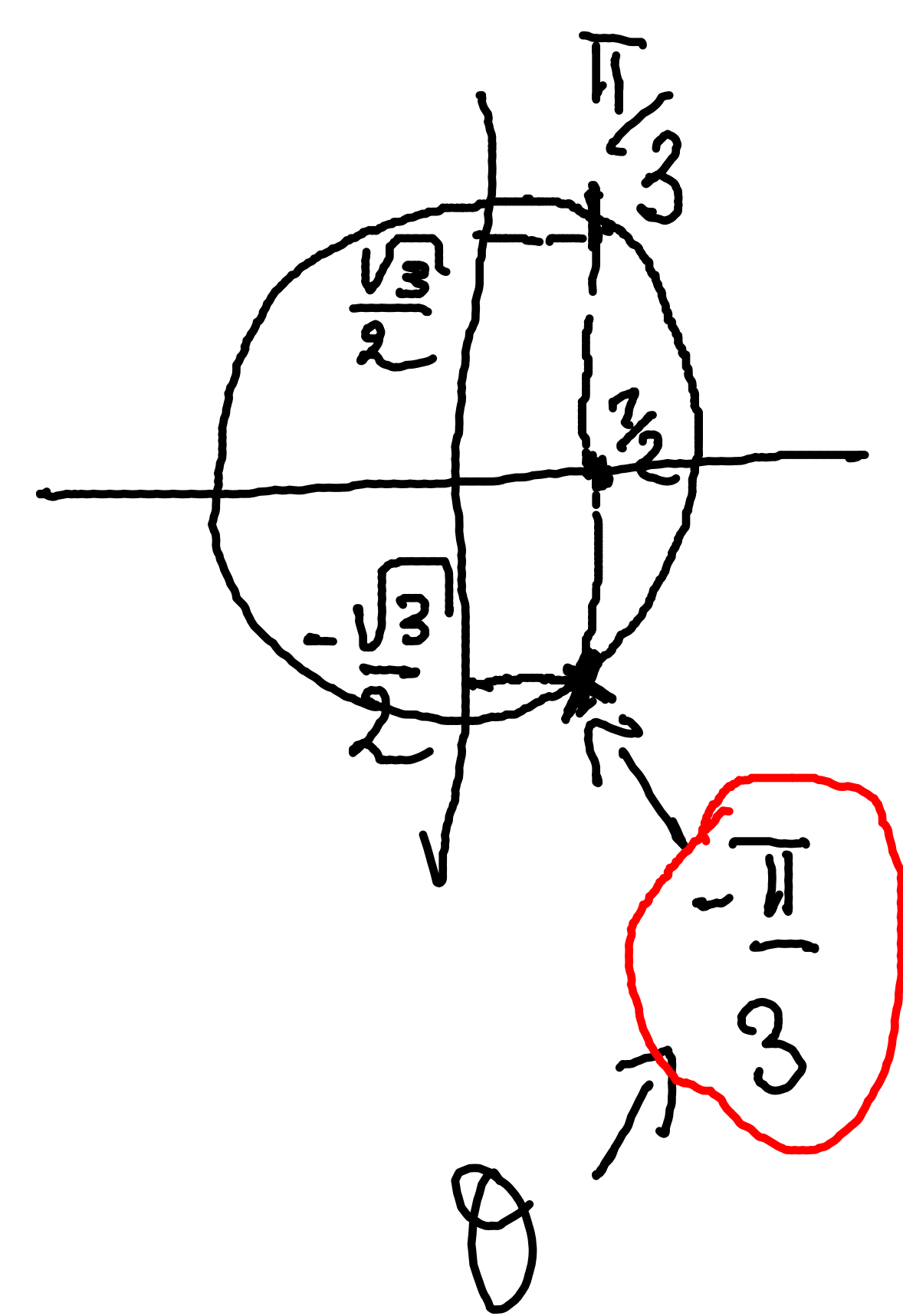
$$Z = \sqrt{12} \left(\sqrt{\frac{3}{12}} + i \frac{-3}{\sqrt{12}} \right)$$

$$|Z| = \sqrt{12}$$

$$Z = \sqrt{12} \left(\sqrt{\frac{3}{12}} + i \left(\frac{-3}{\sqrt{12}} \right) \right)$$

$$Z = \sqrt{12} \left(\frac{1}{2} + i \frac{-\sqrt{3}}{2} \right)$$

$\cos \theta$ $\sin \theta$



$$\frac{-3}{\sqrt{12}} = \frac{-3}{\sqrt{4 \times 3}} = \frac{-3}{2\sqrt{3}} = -\frac{\sqrt{3}}{2}$$

$$Z = \sqrt{12} \left(\cos\left(-\frac{2\pi}{3}\right) + i \sin\left(-\frac{2\pi}{3}\right) \right)$$

$$Z = 1 + i$$

module

$$|Z| = \sqrt{a^2 + b^2}$$

$$|Z| = \sqrt{1^2 + 1^2} = \sqrt{2}$$

$$Z = |Z| (\cos \theta + i \sin \theta)$$

> 0

$$Z = \sqrt{2} \left(\frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} i \right)$$

module
en facteur

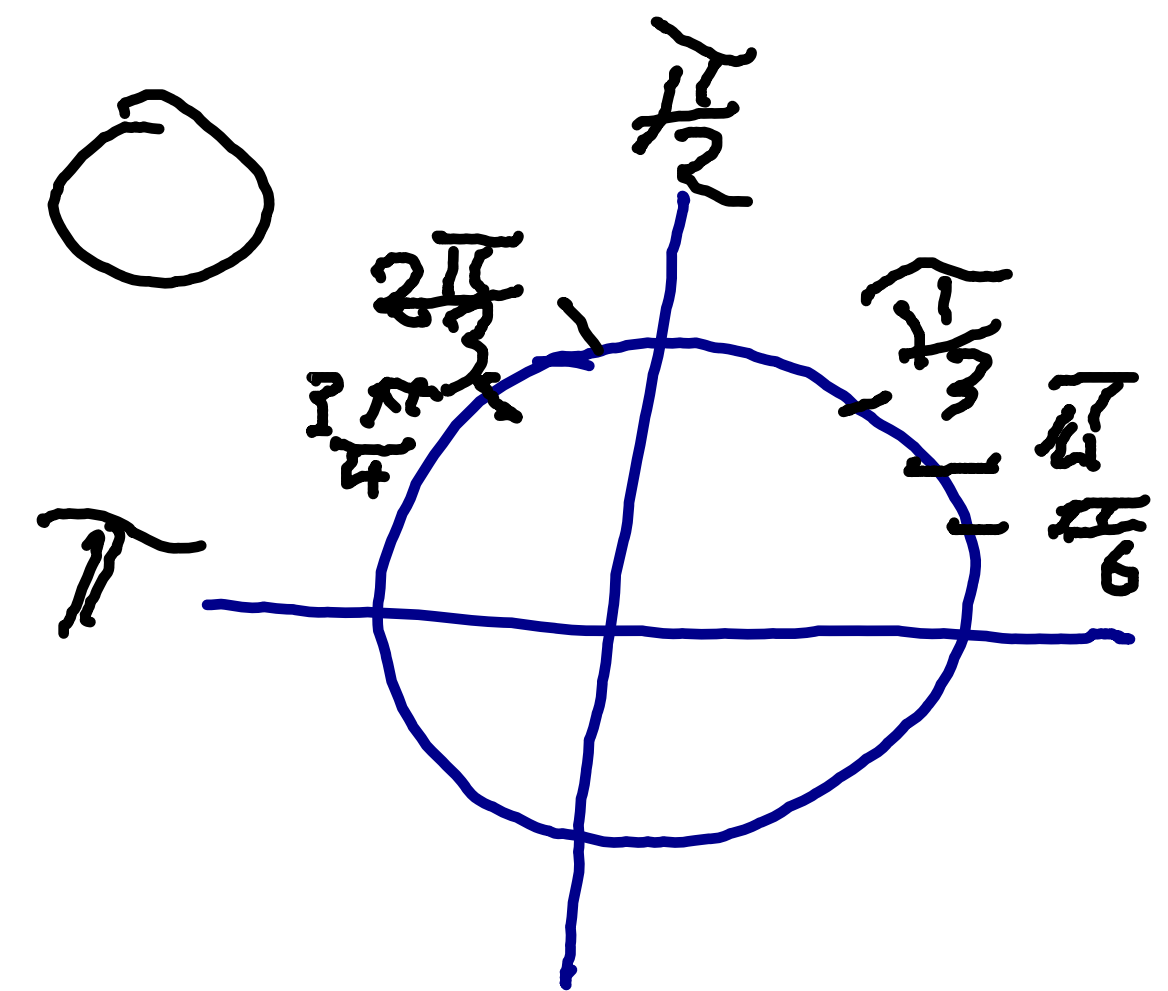
$\cos \theta$

$\sin \theta$

$$Z = \sqrt{2} \left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4} \right)$$

$$\cos^2 x + \sin^2 x = 1$$

θ	π	$\frac{\pi}{2}$	$\frac{\pi}{3}$	$\frac{\pi}{4}$	$\frac{\pi}{6}$	0
cos	-1	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
sin	0	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0



$$Z = 7\sqrt{3} \left(\cos \frac{5\pi}{3} + i \sin \frac{5\pi}{3} \right)$$

$$Z = 7\sqrt{3} \left(\frac{1}{2} + i \left(-\frac{\sqrt{3}}{2} \right) \right)$$

$$Z = 7\sqrt{3} \times \frac{1}{2} + i \left(-\frac{\sqrt{3}}{2} \right) \times 7\sqrt{3}$$

$$Z = \frac{7\sqrt{3}}{2} - \frac{21}{2}i$$

