

$$A(-3; 1; 2)$$

$$r = \sqrt{9+1+4} = \sqrt{14}$$

$$\theta = \arccos(z/r) = 1,01 \text{ rad} = \underline{57,7^\circ}$$

$$\varphi = \arctan\left(\frac{y}{x}\right) + \frac{1}{2} \text{ tour}$$

$$= 2,82 \text{ rad} = \underline{162^\circ}$$

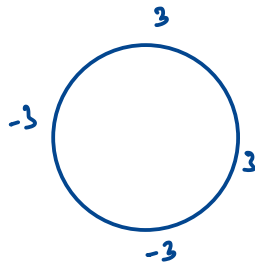
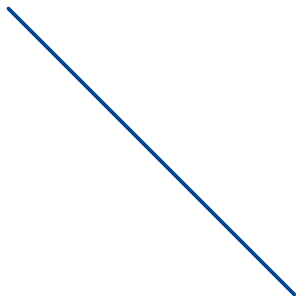
$$B(1; -2; 4)$$

$$z = 4$$

$$r = \sqrt{5}$$

$$\theta = \arctan(-2) = -1,1 \text{ rad}$$

$$= \underline{-63,4^\circ}$$



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$$(a) \quad x + y = 0$$

$$\Leftrightarrow y = -x$$

$$(b) \quad z \cdot \bar{z} = |z|^2$$

$$\Rightarrow |z| = 3$$

$$(c) \quad \frac{z}{\bar{z}} = \frac{re^{i\theta}}{re^{-i\theta}}$$

$$= e^{i\theta} = e^{-i\pi/2}$$

$$\Rightarrow \theta = -\frac{\pi}{4}$$

$$(d) \quad z = x + iy$$

$$z \cdot \bar{z} = x + iy$$

$$= -x + iy$$

$$= 2iy$$

$$\Leftrightarrow y = \frac{2}{i} = -2i$$

↳ PAS DE REPRÉSENTATION.

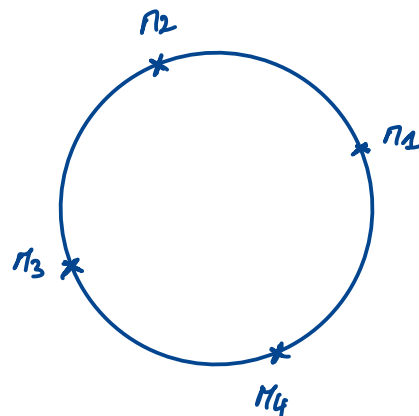
On pose $z = re^{i\theta} \Leftrightarrow z^4 = r^4 e^{i4\theta}$
de plus $81i = 81 e^{i\pi/2}$.

On résout: $r^4 e^{i4\theta} = 81 e^{i\pi/2}$

$$\Leftrightarrow \begin{cases} r^4 = 81 & \text{avec } r > 0 \\ 4\theta = \frac{\pi}{2} [2n] \end{cases}$$

$$\Leftrightarrow \begin{cases} r = 3 \\ \theta = \frac{\pi}{8} [2n] \end{cases}$$

$$\left\{ \begin{array}{l} z_1 = 3e^{i\pi/8} \\ z_2 = 3e^{i5\pi/8} \\ z_3 = 3e^{i9\pi/8} = 3e^{-i7\pi/8} \\ z_4 = 3e^{i13\pi/8} = 3e^{-i3\pi/8} \end{array} \right.$$



$$A(-3; 1; 2)$$

$$z = 2$$

$$r = \sqrt{10}$$

$$\theta = \arctan\left(\frac{1}{-3}\right) + \frac{1}{2} \text{ tour}$$

$$= 2,82 \text{ rad} = \underline{162^\circ}$$

$$B(1; -2; 4)$$

$$r = \sqrt{1+4+16} = \underline{\sqrt{21}}$$

$$\theta = \arccos\left(\frac{1}{\sqrt{21}}\right) = \arccos\left(\frac{4}{\sqrt{21}}\right) = 0,510 \text{ rad}$$

$$= \underline{29,2^\circ}$$

$$\varphi = \arctan(-2) = -1,11 \text{ rad}$$

$$= \underline{-63,4^\circ}$$



$$(a) x - y = 0$$

$$y = x$$

$$(b) z \cdot \bar{z} = |z|^2$$

$$\Rightarrow |z| = 4$$

$$(c) \frac{z}{\bar{z}} = i$$

$$\frac{r e^{i\theta}}{r e^{-i\theta}} = e^{i2\theta} = e^{i\pi/2}$$

$$\theta = \pi/4$$

$$(d) z - \bar{z} = x + iy - x + iy$$

$$= 2iy$$

$$2iy = 6$$

$$\Leftrightarrow y = -3i$$

↳ pas de
représentation

$$\text{On pose } z = re^{i\theta} \Leftrightarrow z^4 = r^4 e^{i4\theta}$$

$$\text{de plus } -81i = 81 e^{-i\pi/2}$$

$$\text{On résout: } r^4 e^{i4\theta} = 81 e^{-i\pi/2}$$

$$\Leftrightarrow \begin{cases} r^4 = 81 & \text{avec } r > 0 \\ 4\theta = -\frac{\pi}{2} [2n] \end{cases}$$

$$\Leftrightarrow \begin{cases} r = 3 \\ \theta = -\frac{\pi}{8} \left[\frac{\pi}{2} \right] \end{cases}$$

$$\Leftrightarrow z_1 = 3e^{-i\pi/8}$$

$$z_2 = 3e^{i3\pi/8}$$

$$z_3 = 3e^{i7\pi/8}$$

$$z_4 = 3e^{i11\pi/8} = 3e^{-i5\pi/8}$$

