KAT - Domácí úkol 1

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- **Úloha 1.**

$$z^3 = -4\sqrt{2} + 4\sqrt{2}i$$
$$|z|^3(cos(\phi) + i\sin(\phi))^3 = \sqrt{(4\sqrt{2})^2 + (4\sqrt{2})^2} * (\cos(\arctan(-1)) + i\sin(\arctan(-1)))$$
$$|z|^3(cos(3\phi) + i\sin(3\phi)) = 8(\cos(\frac{3\pi}{4}) + i\sin(\frac{3\pi}{4}))$$

modul:

$$|z| = \sqrt[3]{8} = 2$$

fáze:

$$\cos(3\phi) + i\sin(3\phi) = \cos(\frac{3\pi}{4}) + i\sin(\frac{3\pi}{4})$$
$$\phi_1 = \frac{\pi}{4}$$
$$\phi_2 = \frac{11\pi}{12}$$
$$\phi_3 = \frac{19\pi}{12}$$

řešení:

$$z_1 = 2(\cos(\frac{\pi}{4}) + i\sin(\frac{\pi}{4}))$$
$$z_2 = 2(\cos(\frac{11\pi}{12}) + i\sin(\frac{11\pi}{12}))$$
$$z_3 = 2(\cos(\frac{19\pi}{12}) + i\sin(\frac{19\pi}{12}))$$