

1.10*

lördag 20 januari 2024 19:06

a)

$$z^4 = -1$$

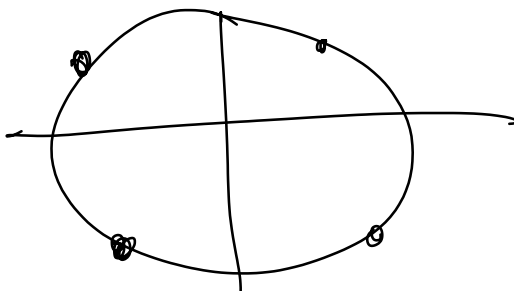
$$z^4 = r^4 \cdot e^{i4\theta}$$

$$r = 1$$

$$4\theta = \pi + 2k\pi \Leftrightarrow \theta = \frac{\pi}{4} + \frac{k}{2}\pi$$

lös. $e^{i4\theta}$

$$\text{Sv. } \frac{1}{\sqrt{2}} (\pm 1 \pm i)$$



b)

$$z^5 = 32$$

$$z^5 = r^5 e^{i5\theta}$$

$$r = 2$$

$$5\theta = 0 + 2k\pi \Leftrightarrow \theta = \frac{2\pi}{5} k$$

$$\text{Sv. } z_k = 2 e^{i \frac{2\pi}{5} k}$$

(5 jämf utspärda punkter)