

$$a) 9i = 9 \cdot \left(\cos \frac{\pi}{2} + i \sin \frac{\pi}{2} \right) \quad [\text{radianer}]$$

$$b) \text{ Om } z^2 = 9i \quad \text{så måste}$$

$$1) |z|^2 = 9 \quad \Rightarrow |z| = 3$$

$$2) 2 \arg z = \frac{\pi}{2} + n \cdot 2\pi$$

\Leftrightarrow Obs, argumenten är bara lika modulo hela varv!

$$\arg z = \frac{\pi}{4} + n\pi$$

\Leftrightarrow

$$\arg z = \frac{\pi}{4} \quad \text{eller} \quad \arg z = \frac{5\pi}{4}$$

Obs, två lösningar per varv!

$$\text{Alltså } z = 3 \left(\cos \frac{\pi}{4} + i \sin \frac{\pi}{4} \right) = 3 \left(\frac{1}{\sqrt{2}} + i \frac{1}{\sqrt{2}} \right) =$$

$$= \frac{3\sqrt{2}}{2} (1+i)$$

eller

$$z = 3 \left(\cos \frac{5\pi}{4} + i \sin \frac{5\pi}{4} \right) =$$

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

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