

Question

$$x^5 + 243 = 0$$

$$(x+3)(x^4 - 3x^3 + 9x^2 - 27x + 81) = 0 \Rightarrow$$

\Rightarrow

$$x = -3$$

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

$$x = 3 \cdot \left(\cos\left(-\frac{3\pi}{5}\right) + i \cdot \sin\left(-\frac{3\pi}{5}\right) \right)$$

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

$$x = 3 \cdot \left(\cos\left(-\frac{\pi}{5}\right) + i \cdot \sin\left(-\frac{\pi}{5}\right) \right)$$

Answer: $x = -3$, $x = 3 \cdot \cos\left(\frac{\pi}{5}\right) + 3 \cdot i \cdot \sin\left(\frac{\pi}{5}\right)$, $x = 3 \cdot \cos\left(-\frac{3\pi}{5}\right) + 3 \cdot i \cdot \sin\left(-\frac{3\pi}{5}\right)$,

$x = 3 \cdot \cos\left(\frac{3\pi}{5}\right) + 3 \cdot i \cdot \sin\left(\frac{3\pi}{5}\right)$ and $x = 3 \cdot \cos\left(-\frac{\pi}{5}\right) + 3 \cdot i \cdot \sin\left(-\frac{\pi}{5}\right)$.