p - reálný polynom

z - komplexní kořen, $z = a+bi$

$\bar{z}$ - také kořen $\bar{z} = a-bi$

p - lze vydělit $\boxed{(x-z)(x-\bar{z}) = D(x)}$

$$(x-z)(x-\bar{z}) = (x-a-bi)(x-a+bi)$$

$$= [(x-a)-bi][(x-a)+bi] = (x-a)^2-(bi)^2 =$$

$$= x^2-2ax+a^2+b^2 = x^2+px+q$$

$p = -2a$, $q = a^2+b^2$

$p = -2\,\mathrm{Re}\,z$ $\quad q = |z|^2$

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p - kořen c násobnosti m

$$p(x) = (x-c)^m \cdot Q(x)$$

c - kořen p' násobnosti m-1

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α - kořen p_i

$$p_{i+1}(\alpha)\, p_{i-1}(\alpha) < 0$$

$$p_{i-1} = Q_i \cdot p_i - p_{i+1}$$

$$p_{i-1}(\alpha) = Q_i(\alpha)\cdot \underbrace{p_i(\alpha)}_{=0} - p_{i+1}(\alpha)$$

$$p_{i-1}(\alpha)\cdot p_{i+1}(\alpha) \leq 0$$

$p_{i+1}(\alpha) = 0 \Rightarrow p_{i-1}(\alpha) = 0 \Rightarrow p_{i-2}(\alpha) = 0 \Rightarrow$

$\ldots \Rightarrow p_1(\alpha) = 0 \Rightarrow p_0(\alpha) = 0$ - spor

$\Rightarrow p_{i-1}(\alpha)\, p_{i+1}(\alpha) < 0$

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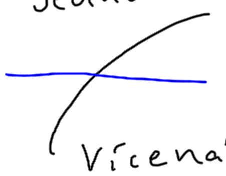
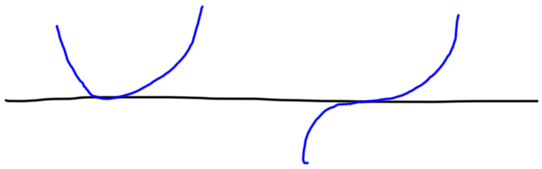
Jednoduchý kořen:



Vícenás. kořen

sudá nás. lichá nás.



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