

Co więcej

$$(i) \quad |\alpha - x_n| \leq \frac{\lambda^n}{1-\lambda} |x_0 - x_1|, \quad n \geq 0$$

$$(ii) \quad \lim_{n \rightarrow \infty} \frac{\alpha - x_{n+1}}{\alpha - x_n} = g'(\alpha)$$

Wiec można określić błęd dla x_n bliskich α

$$\alpha - x_{n+1} = g'(\alpha) [\alpha - x_n] \quad (B)$$

Przykład

$$I1) \quad g(x) = 5 + x - x^2, \quad g'(x) = 1 - 2x, \quad g'(\alpha) = 1 - 2\sqrt{5} < 1$$

$$I2) \quad g(x) = 5/x, \quad g'(x) = -5/x^2, \quad g'(\alpha) = -1$$

$$I3) \quad g(x) = 1 + x - \frac{1}{5}x^2, \quad g'(\alpha) = 1 - \frac{2}{5}\sqrt{5} = 0,106$$

$$g'(x) = 1 - \frac{2}{5}x$$

$$I4) \quad g(x) = \frac{1}{2} \left(x + \frac{5}{x} \right), \quad g'(x) = \frac{1}{2} \left(1 - \frac{5}{x^2} \right)$$

$$g'(\alpha) = 0$$

Met. Newton'a