$\boxed{26}$

$f(\alpha)=0,\ f'(\alpha)\neq 0$

$$x_{n+1} := x_n - \frac{f(x_n)}{f'(x_0)}$$

Zał: $\exists_{\substack{p\geq 1\\ p\in\mathbb{N}}}\ f^{(p)}(\alpha)\neq 0 \ \wedge\ f'(x_0)\neq 0$

$$F(x_n) = x_{n+1} \implies F(\alpha)=\alpha$$

$$F'(x_n) = 1 - \frac{f'(x_n)}{f'(x_0)} \implies F'(\alpha) = 1 - \frac{f'(\alpha)}{f'(x_0)}$$

jeśli $f(\alpha)\neq f(x_0)$:

$$C = \left|F'(\alpha)\right| = \left|1-\frac{f'(\alpha)}{f'(x_0)}\right|$$

z zad. L5.3

$$0<C<1 \iff \left|1-\frac{f'(\alpha)}{f'(x_0)}\right|<1$$

$$0<\frac{f'(\alpha)}{f'(x_0)}<2,$$ wtedy

Rząd zbieżności to 1

jeśli $f(\alpha)=f(x_0)$:

$$* \exists_p\ f^{(p)}(\alpha)\neq 0 \implies \begin{cases} F^{(p)}(\alpha) = -\dfrac{f^{(p)}(\alpha)^{\neq 0}}{f'(x_0)\neq 0} \\ C = \left|\dfrac{F^{(p)}(\alpha)}{p!}\right| \neq 0 \end{cases}$$

z zad. L5.3

Rząd zbieżności to p