Greske priblizuih vrednosti funkcije

$$y = f(x_1, \ldots, x_n)$$
$$y^* = f(x_1^*, \ldots, x_n^*)$$

granica aps. greske

$$Af^* = Ay^* = \sup_{(x_1, \ldots, x_n) \in G} |f(x_1, \ldots, x_n) - f(x_1^*, \ldots, x_n^*)|$$

granica relativne greske

$$Rf^* = Ry^* = \frac{Ay^*}{|y^*|}$$

$$\Delta = y - y^* = f(x_1, \ldots, x_n) - f(x_1^*, \ldots, x_n^*) \quad , \quad \Delta_i = x_i - x_i^*$$

$$= f(x_1^* + \Delta_1, \ldots, x_n^* + \Delta_n) - f(x_1^*, \ldots, x_n^*)$$

$$= \left[f(x_1^*, \ldots, x_n^*) + \frac{1}{1!} \cdot \left(\frac{\partial f}{\partial x_1} \cdot \Delta_1 + \ldots + \frac{\partial f}{\partial x_n} \cdot \Delta_n \right) \right.$$
$$\left. + \underbrace{\varepsilon(\underbrace{\Delta_1}_{\to 0}, \ldots, \underbrace{\Delta_n}_{\to 0})}_{\to 0} \right] - f(x_1^*, \ldots, x_n^*)$$

$$\approx \sum_{i=1}^{n} \frac{\partial f}{\partial x_i} \cdot \Delta_i \qquad , \quad \frac{\partial f}{\partial x_i} = f'_{x_i}(x_1^*, \ldots, x_n^*)$$

$$\boxed{\Delta f^* = \sum_{i=1}^{n} \left| \frac{\partial f}{\partial x_i} \right| \cdot \Delta x_i^*} \qquad \Delta x_i^* = |\Delta_i|$$

linearna ocena aps. greske

$$\boxed{Af^* = \sum_{i=1}^{n} \left| \frac{\partial f}{\partial x_i} \right| \cdot Ax_i}$$

opsta f-la za granicu aps. gr.