1. Properly typeset the following command and properly refere to it in the text

$$\left(\sum_{i_1,\ldots,i_m} a_{i_1,\ldots,i_m}^{2m} m + 1^{\frac{m+1}{2m}} \leqslant C \leqslant \right. \tag{1}$$

$$\sup\{|\sum_{i_1,\ldots,i_m} a_{i_1,\ldots,i_m} x_{i_1}^1 \ldots x_{i_m}^m| : \|(x_i^k)_{i=1}^n\|_\infty \leqslant 1,\ 1 \leqslant k \leqslant m\}, \tag{2}$$

2. Properly typset the expression:

$$R \in z$$

3. Properly typeset indexes in the following sum:

$$f(x) = \sum_{\substack{n=0 \\ k=2}}^{\infty} a_n^k$$

4. Properly typeset the following theorem

Theorem 1 *(Cauchy–Hadamard)* The radius of convergence R of the power series

$$\sum_{n=0}^{\infty} a_n(z - z_0)^n \qquad |z - z_0| < R$$

can by calculated via the following formula

$$\frac{1}{R} = limsup_{n \to \infty} \sqrt[n]{|a_n|}.$$

Definition 1 *(Prime numbers) A number is called prime, if it is not compound.*

5. Typeset the follwing matrix (display-style):

$$\left\{ \begin{array}{cc} a_{11} & a_{12} \\ a_{21} & a_{22} \end{array} \right\}$$

and in the text $\left(\begin{smallmatrix} cca_{11} & a_{12} \\ a_{21} & a_{22} \end{smallmatrix} \right)$ Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.