REMARKS ON
CHEBYSHEV'S SUBSTITUTIONS FOR INTEGRALS OF DIFFERENTIAL BINOMIALS

ABSTRACT. The well-known Chebyshev's substitutions (I,II,III) for integrals of the form

$$\mathcal{I}=\int x^m(ax^n+b)^p dx \qquad \text{with } m,n,p\in\mathbb{Q}$$

in analysis courses are presented in the chapter " Integration of Irrational Functions ".

In this note we use subtitutions I,II,III in case of

1) $m,n,p\in\mathbb{Z}$, when the function appearing under the integral sign is rational ;

2) the integral $J=\int x^m(ax^n+b)^p\cdot f(x^n)\,dx$ where $m,n,p\in\mathbb{Q}$ and f is an arbitrary rational function ;

3) $m,n,p\in\mathbb{R}$, if $p\in\mathbb{N}^*$ or $\frac{m+1}{n}\in\mathbb{N}^*$ or $\frac{m+1}{n}+p\in-\mathbb{N}^*$.