

ERRATA TO "CONVEXIFIABLE FUNCTIONS IN INTEGRAL CALCULUS"

ERRATUM

In the December 2005 issue of Glasnik Matematički in the article *Convexifiable functions in integral calculus* by Sanjo Zlobec, Glasnik Matematički **40(60)** (2005), 241-247 some errors occurred due to misprint. The editors regret these errors. The errors are:

- on the line 20 of page 242 formula

$$\det V = (st)(t - \xi)(\xi - s) > 0$$

should read

$$\det V = (s - t)(t - \xi)(\xi - s) > 0$$

- on the line 4 of page 243 formula

$$f(t) = f(c) + \frac{1}{2}\alpha(t^2 c^2) + \int_c^t g(\xi)d\xi$$

should read

$$f(t) = f(c) + \frac{1}{2}\alpha(t^2 - c^2) + \int_c^t g(\xi)d\xi$$

- on the line 4 of page 244 formula

$$\int_s^t \frac{f(\xi)}{t-s} d\xi \leq \frac{1}{2}[f(s) + f(t)] \frac{1}{12}\alpha(ts)^2$$

should read

$$\int_s^t \frac{f(\xi)}{t-s} d\xi \leq \frac{1}{2}[f(s) + f(t)] - \frac{1}{12}\alpha(t-s)^2$$

- on the line 23 of page 244 formula

$$f\left(\frac{1}{d-c} \int_c^d g(t)dt\right) \leq \frac{1}{dc} \int_c^d f(g(t))dt + \frac{1}{2}\alpha R(c, d; g)$$

should read

$$f\left(\frac{1}{d-c}\int_c^d g(t)dt\right) \leq \frac{1}{d-c}\int_c^d f(g(t))dt + \frac{1}{2}\alpha R(c, d; g)$$

Therefore the correct versions of Theorems are as follows:

THEOREM 2.2 (Explicit Representation of Convexifiable Function). *Function $f : I \rightarrow \mathbb{R}$ is convexifiable if, and only if, there exists a number α such that*

$$f(t) = f(c) + \frac{1}{2}\alpha(t^2 - c^2) + \int_c^t g(\xi)d\xi$$

where $c, t \in I, c < t$, and $g = g(\cdot, \alpha) : I \rightarrow \mathbb{R}$ is a non-decreasing right-continuous function.

THEOREM 3.1 (Mean-Value Bound for Convexifiable Function; [8]). *Consider a continuous convexifiable function $f : \mathbb{R} \rightarrow \mathbb{R}$ with a convexifier α on an open interval $(a, b) \in \mathbb{R}$. Then*

$$\int_s^t \frac{f(\xi)}{t-s} d\xi \leq \frac{1}{2}[f(s) + f(t)] - \frac{1}{12}\alpha(t-s)^2$$

for every $a < s < t < b$.

THEOREM 3.3 (Integral Mean-Value Bound for Composite Convexifiable Function). *Let $f : (a, b) \rightarrow \mathbb{R}$ be convexifiable with a convexifier α and let $g : [c, d] \rightarrow (a, b)$ be continuous. Then*

$$f\left(\frac{1}{d-c}\int_c^d g(t)dt\right) \leq \frac{1}{d-c}\int_c^d f(g(t))dt + \frac{1}{2}\alpha R(c, d; g)$$

where

$$R(c, d; g) = \left[\frac{1}{d-c} \int_c^d g(t)dt \right]^2 - \frac{1}{d-c} \int_c^d [g(t)]^2 dt.$$