On two notes by M. Bencze

J. Sándor

Babeş-Bolyai University, 3400 Cluj-Napoca. Romania

In vol **10** of this Journal M. Bencze has published two notes on certain inequalities for the Smarandache function. In [2] it is proved that

$$S\left(\prod_{k=1}^{m} m_k\right) \leq \sum_{k=1}^{m} S(m_k) \quad (1)$$

This, in other form is exactly inequality (2) from our paper [5], and follows easily from Le's inequality S(ab) ≤ S(a) + S(b)

In [1] it is proved that

$$S\left(\prod_{k=1}^{n} (a_k!)^{b_k}\right) \leq \sum_{k=1}^{n} a_k b_k \quad (2)$$

The proof follows the method of the problem from [3], i.e.

$$S(m!^n) \leq m \cdot n \quad (3)$$

This appears also in [4], [5]. We note here that relation (2) is a direct consequence of (1) and (3), since

$$S(a_1!^{b_1} \cdots a_n!^{b_n}) \leq S(a_1!^{b_1}) + \cdots + S(a_n!^{b_n}) \leq b_1 a_1 + \cdots + b_n a_n$$

References

1. M. Bencze, A new inequality for the Smarandache function, SNJ, 10 (1999), No. 1 – 2 - 3, p. 139
2. M. Bencze, An inequality for the Smarandache function, SNJ, 10 (1999), No. 1-2-3, p. 160
3. J. Sándor, Problem L : 87, Mat Lap (Cluj), No. 5/1997, p. 194
4. J. Sándor, On certain new inequalities and limits for the Smarandache function, SNJ, 9 (1998), 63 – 69
5. J. Sándor, On an inequality for the Smarandache function, SNJ 10 (1999), 125 – 127