# LETTERS TO THE EDITOR

## THE ROOTS OF THE CHARACTERISTIC EQUATIONS
## IN THE GORELIKA ARTICLE

M. D. Mikhailov

The characteristic equations (7) and (21) in [1] have the form

$$\mathrm{tg}\,\mu = -\frac{\mu\,(\mathrm{Bi}_0 + \mathrm{Bi}_1)\left(1 - \dfrac{r_0}{R}\right)}{\mathrm{Bi}_0\,\mathrm{Bi}_1\left(1 - \dfrac{r_0}{R}\right)^2 - \mu^2}\,, \tag{1}$$

$$\mathrm{tg}\,\mu = -\frac{\mu\left(\mathrm{Bi}_0 + \mathrm{Bi}_1 + \dfrac{R}{r_0} - 1\right)\left(1 - \dfrac{r_0}{R}\right)}{\left(\dfrac{R}{r_0} + \mathrm{Bi}_0\right)(\mathrm{Bi}_1 - 1)\left(1 - \dfrac{r_0}{R}\right) - \mu^2}\,. \tag{2}$$

Reference [1] provides a table for the values of the first root of these equations for $r_0/R = 0.2$, $0.4$, $0.6$, and $0.8$ under the condition that $\mathrm{Bi}_0 = \mathrm{Bi}_1$.

After substitution into (1) of

$$\mathrm{Bi}_0^* = \mathrm{Bi}_0\left(1 - \frac{r_0}{R}\right) \text{ and } \mathrm{Bi}_1^* = \mathrm{Bi}_1\left(1 - \frac{r_0}{R}\right) \tag{3}$$

we have

$$\mathrm{tg}\,\mu = \frac{\mu\left(\mathrm{Bi}_0^* + \mathrm{Bi}_1^*\right)}{\mu^2 - \mathrm{Bi}_0^* - \mathrm{Bi}_1^*}\,. \tag{4}$$

After substitution into (2) of

$$\mathrm{Bi}_0^* = \left(\mathrm{Bi}_0 + \frac{R}{r_0}\right)\left(1 - \frac{r_0}{R}\right) \text{ and } \mathrm{Bi}_1^* = (\mathrm{Bi}_1 - 1)\left(1 - \frac{r_0}{R}\right) \tag{5}$$

we again derive Eq. (4).

Reference [2] gives a table for the first three roots of (4).

More detailed tables of the first six roots of (4) for a wide range of variation in $\mathrm{Bi}_0^*$ and $\mathrm{Bi}_1^*$ are given in [3], pp. 64-115.

## LITERATURE CITED

1. A. G. Gorelik, Inzhen.-Fiz. Zh., 15, No. 6, 1067-1073 (1968).
2. A. V. Vurgaft and V. A. Dobrynchenko, Inzhen.-Fiz. Zh., 15, No. 5, 931-933 (1968).
3. M. D. Mikhailov, Nonsteady Temperature Fields in Shells [in Russian], Energiya (1967).