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ON A CLASS OF LINEAR WEINGARTEN SURFACES

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Abstract. We consider a class of linear Weingarten surfaces of revolution
whose principal curvatures, meridional k_μ and parallel k_π, satisfy the re-
lation $k_\mu = (n + 1)k_\pi$, $n = 0, 1, 2, \ldots$. The first two members of this
class of surfaces are the sphere ($n = 0$) and the Mylar balloon ($n = 1$).
Elsewhere the Mylar balloon has been parameterized via the Jacobian and
Weierstrassian elliptic functions and elliptic integrals. Here we derive six al-
ternative parameterizations describing the third type of surfaces when $n = 2$.
The so obtained explicit formulas are applied for the derivation of the basic
geometrical characteristics of this surface.

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