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## Embeddings into Euclidean Spaces and the Deleted Product Obstruction

Two counterexamples are constructed:

- an example of a 3-dimensional manifold  $N$  with boundary which is not embeddable in  $\mathbb{R}^3$  but there exists an equivariant mapping  $\varphi : \Sigma\tilde{N} \rightarrow \Sigma S^2$ ; and
- an example of a closed smooth  $4k$ -dimensional manifold which does not smoothly embed into  $\mathbb{R}^{6k-1}$ , but there exists an equivariant mapping  $\tilde{N} \rightarrow S^{6k-2}$ . (Here  $\tilde{N} = N \times N \setminus (\Delta N)$ , where  $\Delta N$  is the diagonal.)