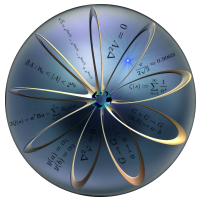

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inclusion mapping

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Definition Let X be a subset of Y. Then the **inclusion map** from X to Y is the mapping

$$\begin{aligned} \iota : X &\to Y \\ x &\mapsto x. \end{aligned}$$

In other words, the inclusion map is simply a fancy way to say that every element in X is also an element in Y.

To indicate that a mapping is an inclusion mapping, one usually writes $\hookrightarrow$ instead of $\to$ when defining or mentioning an inclusion map. This hooked arrow symbol $\hookrightarrow$ can be seen as combination of the symbols $\subset$ and $\to$. In the above definition, we have not used this convention. However, examples of this convention would be:

- Let $\iota : X \hookrightarrow Y$ be the inclusion map from X to Y.
- We have the inclusion $S^n \hookrightarrow \mathbb{R}^{n+1}$.