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Metric space isometries

Definition. Metric space isometries

Let (X, d_X) and (Y, d_Y) be two [metric spaces](#) A map $f : X \rightarrow Y$ is called an

- **isometric embedding** if for any $a, b \in X$

$$d_X(a, b) = d_Y(f(a), f(b))$$

- **isometry** if it is an isometric embedding and bijective

Any [isometric embedding](#) between metric spaces is injective.

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