

This document will contain definitions and other trivial notes.

1 ‘Trivial’ definitons

Definiton 1.1 (Monoid). A semi-group with identity.

Definiton 1.2 (Inclusion Map). A map $f : A \mapsto B$ that takes $x \in A$ to $x \in B$

Definiton 1.3 ((left) G-Set). Let G be a group, and X a set. Then, f is a left group action on of G on X , or X is a left G -Set iff

$$f : G \times X \mapsto X : \forall x \in X, [[f(e_G, x) = x \text{ and } \forall a, b \in G, f(ab, x) = f(a, f(b, x))]$$

Definiton 1.4 (Pre-order). A reflexive, transitive binary relation.

Definiton 1.5 (Partial Order). Pre-order that's antisymmetric.

Definiton 1.6 (Total Order). Partial order with trichotomy.

Definiton 1.7 (Presheaf). A functor $\mathcal{A}^{op} \mapsto Set$