Section 36: Sylow Theorems

Def: Let X be a set and G a group. An *action* of G on X is a map $* : G \times X \to X$ such that

1. $ex = x$ for all $x \in X$.
2. $(g_1 g_2)(x) = g_1(g_2 x)$ for all $xinX$ and all $g_1, g_2 \in G$.

Under these conditions, X is a *G-set*.

Orbit Equation: The major results in this section come from counting the number of G-sets.