# Multiple arguments

- Let's say we have $f : X \times X \to X$,
- $\sim$ an equivalence relation on $X$;
- and we'd like to define $\widetilde{f} : (X/\sim) \times (X/\sim) \to X/\sim$,
- and do something like:

$$\widetilde{f}([x], [y]) = [f(x, y)].$$

- Then we need:

$$x \sim x' \wedge y \sim y' \implies f(x, y) \sim f(x', y').$$

This works for addition modulo $n$ (as we have proved time and time again):

$$x \equiv x' \pmod{n} \wedge y \equiv y' \pmod{n} \implies x + y \equiv x' + y' \pmod{n}.$$