Example: Peano Arithmetic in Agda

```
_+_ : ℕ → ℕ → ℕ
0  + n = n
S(m) + n = S (m + n)
```

Example: Peano Arithmetic in Agda

```
+comm : ∀ (x y : ℕ) → x + y ≡ y + x
+comm Z y rewrite +0 y = refl
+comm (S x) y rewrite +suc y x | +comm x y = refl
```

```
+suc : ∀ (x y : ℕ) → x + (S y) ≡ S(x + y)
+suc Z y = refl
+suc (S x) y rewrite +suc x y = refl
```

```
+0 : ∀ (x : ℕ) → x + Z ≡ x
+0 Z = refl
+0 (S x) rewrite +0 x = refl
```