Lean Tutoraat cheat sheet

Tactic	Usage	Example
`rfl`	Prove equalities that hold *by definition*.	`example : 1 + 2 = 3 := by rfl`
`numbers`	Prove (in)equalities between purely numerical expressions.	`example : 5 ^ 3 < 2 ^ 7 := by numbers`
`algebra`	Prove algebraic identities.	`example (x y : ℝ) : (x + y) * (x - y) = x ^ 2 - y ^ 2 := by algebra`
`rewrite [h]`	If hypothesis `h` is of the form `a = b`, replace `a` with `b` in the goal.	`example (x : ℚ) (h : x = 2) : x ^ 2 = 4 := by` `  rewrite [h]; numbers`
`rewrite [←h]`	If hypothesis `h` is of the form `a = b`, replace `b` with `a` in the goal.	`example (x y : ℚ) (h : x + 1 = y) : x = y - 1 := by` `  rewrite [←h]; algebra`
`positivity`	Prove goals of the form `a > 0` or `a ≥ 0`.	`example (x : ℝ) : x ^ 2 ≥ 0 := by positivity`

`calc`	Chain (in)equalities together to prove a goal.	`example (x y : ℝ) : x ^ 2 + y ^ 2 - 2 * x * y ≥ 0 := by`
		`  calc`
		`    x ^ 2 + y ^ 2 - 2 * x * y = (x - y) ^ 2 := by algebra`
		`    _ ≥ 0                     := by positivity`