Coq cheat sheet

Definitions	
Name	Description
Expr	Mathematical expression
Hw-name	New hypothesis name
He-name	Existing hypothesis name
...	repetition with an 'and' or ' , ' (optional)

Symboles	
$\forall$	Forall
$\exists$	Exist
$\rightarrow$	Implication
==	Equal
$\equiv$	Equivalence
$\wedge$	and
$\vee$	or
$\neg$	not

Verbose	
Command	Effect
Let's fix (Hw-name) ...	Used to introduce Forall statements
Assume (Hw-name): (expr) ...	Used to introduce Implications statements
Assume for contradiction (Hw-name):(expr)	Used to introduce Contradiction in Implications statements
Let's prove (expr) by proving (expr)	Used to proving the current goal
By definition of (expr) we get (expr)	Used to unfold definitions
Let's prove (expr) by proving (expr) and (expr)	Used to prove Conjunctions and Equivalence statements
Let's prove that (expr) works ie (expr)	Used to prove a mathematical expression containing an Exists with the expression
Let's prove that (expr) fits	Used to prove a mathematical expression containing an Exists
Let's prove the disjunction by proving (expr)	Used to prove a Disjunction
By (expr) it suffices to prove (expr) ...	Applying an existing hypothesis to the goal
By applying (He$_name$)$onthehypothesis$($expr$)$weobtain$(Hw-name)	Applying an existing hypothesis to an hypothesis
By (He-name) we obtain (Hw-name) ...	Used in order to break down a hypothesis
We have (He-name):(expr) such that we get (expr)	Used in order to assert a new hypothesis
By cases on (He-name)	Used in order apply the law of excluded middle
Rewrite (He-name) by using (He-name)	Used to rewrite a hypothesis by using another one
By rewriting using the hypothesis (He-name) we obtain (expr)	Used to rewrite the goal by using a hypothesis
By symmetry, using (expr) we obtain (expr)	Used in order to reverse the element of an equal statement
By transitivity using (expr) such that we get (expr) and (expr)	Used in order to rewrite the goal by introducing a middle man
Let's prove by exfalso	Used in order to prove false
This is a contradiciton	Used in order to prove a contradiction
By using reflexivity	Used to conclude equal statements
We compute	Used to conclude basic statements
It is trivial	Used to prove trivial statements (similar to reflexivity)
Let's simplify	Used to simplify a statement
Helper	Used in order to ask help about the current goal and hypothesis