

# Exercises for SAT and SMT

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20 april 2012

1. Suggest a satisfiable propositional formula with 4 variables and an order of choosing literals, such that you need to backtrack at least once to find a satisfying assignment to the atoms. Show each step of the computation.
2. Use Z3 to prove that in propositional logic “proof by cases” is a valid way to prove things. Proof by cases can be expressed as “if  $c$  is true whenever either  $a$  or  $b$  is true, then it must be the case that both  $a$  implies  $c$  and  $b$  implies  $c$ . There is a lot of good material here: [rise4fun.com/Z3/tutorial/guide](http://rise4fun.com/Z3/tutorial/guide).