Software Verification
Exercise: Software Model Checking

Consider the following routine:

```
always_positive (x: INTEGER): INTEGER
        if x > 0 then
                Result := x + x
        else
                if x = 0 then
                        Result := 1
                else
                        Result := x * x
                end
        end
ensure Result > 0 end
```

Questions:

(a) Build a predicate abstraction of *always_positive* with respect to $\prod$ = {pos,Rpos}. The predicates pos and Rpos correspond to the expressions x > 0 and **Result** > 0 respectively.
(b) Can you verify the abstraction obtained in (a)? If not, give a counterexample path and prove whether or not it is necessarily spurious.