

**SPEC INT =**

**{ based\_on** BOOL,  
**sort** Int,

0 : Int,  
succ, pred : Int  $\rightarrow$  Int,  
- + -, - \* -, - - - : Int, Int  $\rightarrow$  Int, *Infix*  
- == -, -  $\leq$  - : Int, Int  $\rightarrow$  Bool, *Infix*

**Int generated\_by** 0, succ, pred,

pred(succ( $x$ )) =  $x$ ,  
succ(pred( $x$ )) =  $x$ ,

( $x == y$ ) = (( $x \leq y$ )  $\wedge$  ( $y \leq x$ )),  
( $x \leq x$ ) = true,  
(succ( $x$ )  $\leq x$ ) = false,  
( $x \leq y$ ) = true  $\Rightarrow$  ( $x \leq$  succ( $y$ )) = true,  
( $x \leq y$ ) = false  $\Rightarrow$  (succ( $x$ )  $\leq y$ ) = false,  
( $x \leq y$ ) = (succ( $x$ )  $\leq$  succ( $y$ )),

0 +  $y$  =  $y$ ,  
succ( $x$ ) +  $y$  = succ( $x + y$ ),  
pred( $x$ ) +  $y$  = pred( $x + y$ ),  
 $x - 0$  =  $x$ ,  
 $x -$  succ( $y$ ) = pred( $x - y$ ),  
 $x -$  pred( $y$ ) = succ( $x - y$ ),  
 $x * 0$  = 0,  
 $x *$  succ( $y$ ) = ( $x * y$ ) +  $x$ ,  
 $x *$  pred( $y$ ) = ( $x * y$ ) -  $x$   
}