

Inference at \* 1 2  
of proof for Lemma integer sqrt:

....upcase.... NILNIL

1.  $n : \mathbb{Z}$
  2.  $0 < n$
  3.  $\exists r:\mathbb{N}. (((r * r) \leq (n - 1)) \& ((n - 1) < ((r+1) * (r+1))))$
- $\vdash \exists r:\mathbb{N}. (((r * r) \leq n) \& (n < ((r+1) * (r+1))))$   
by D (-1) THEN Auto

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3.  $r : \mathbb{N}$
  4.  $(r * r) \leq (n - 1)$
  5.  $(n - 1) < ((r+1) * (r+1))$
- $\vdash \exists r:\mathbb{N}. (((r * r) \leq n) \& (n < ((r+1) * (r+1))))$
- .