```
mul_cancel_in_eq  THM

⊢  ∀a,b:ℤ, n:ℤ^-0. n•a = n•b ⇒ a = b  by RepeatMFor 3 (Analyze 0)
|
1. a : ℤ
2. b : ℤ
3. n : ℤ^-0
⊢  n•a = n•b ⇒ a = b  by Assert (∀m:ℕ+. m•a = m•b ⇒ a = b)
|
|\
| 4. m : ℕ+
| 5. m•a = m•b
| ⊢  a = b  by Thin 3 THEN Assert (a>b ∨ a = b ∨ a<b)
| |
| 3. m : ℕ+
| 4. m•a = m•b
| 5. a>b ∨ a = b ∨ a<b
| ⊢  a = b  by RepeatOrHD 5
| |
| |\
| | 5. a>b
| | ⊢  a = b
| |   by Inst Thm* ∀a,b:ℤ, n:ℕ+. a<b ⇒ n•a<n•b    {mul_preserves_lt}
| |      [b;a;m]
| |
| |\
| | 5. a = b
| | ⊢  a = b  by Trivial
| |
| .\
| . 5. a<b
| . ⊢  a = b
| .   by Inst Thm* ∀a,b:ℤ, n:ℕ+. a<b ⇒ n•a<n•b    {mul_preserves_lt}
| .      [a;b;m]
|
.\
. 4. ∀m:ℕ+. m•a = m•b ⇒ a = b
. 5. n•a = n•b
. ⊢  a = b  by Decide (n>0)
. |
. |\
. | 6. n>0
. | ⊢  a = b  by Using [‘m’,n] (BackThru 4)
. |
. .\
. . 6. ¬n>0
. . ⊢  a = b  by Assert ((-n)•(-a) = (-n)•(-b))
. . |
. . |\
. . | .....assertion .....
. . | ⊢  (-n)•(-a) = (-n)•(-b)  by Auto
. . |
. . .\
. . . 7. (-n)•(-a) = (-n)•(-b)
. . . ⊢  a = b  by InstHyp [-n] 4
```

```
. . . |
. . . .....set predicate .....
. . . ⊢  0<-n  by OnHyps [7;5] Thin THEN SupInf
END
```