```
div_lbound_1  THM

⊢  ∀a:ℕ, n:ℕ+, k:ℕ. k≤(a ÷ n) ⟺ k·n≤a
| by UnivCD THEN ElaborateDivision Auto 0
|
1. a : ℕ
2. n : ℕ+
3. k : ℕ
4. a = (a ÷ n)·n+(a rem n)
5. (a rem n) ∈ ℕn
⊢  k≤(a ÷ n) ⟺ k·n≤a  by Auto
|
|\
| 6. k≤(a ÷ n)
| ⊢  k·n≤a
|   by FwdThru:
|      Thm* ∀a,b:ℤ, n:ℕ. a≤b ⇒ n·a≤n·b    {mul_preserves_le}
|      on [ k≤(a ÷ n) ]
|      Using:[n]
|
.\
. 6. k·n≤a
. ⊢  k≤(a ÷ n)
.   by FwdThru:
.      Thm* ∀k:ℕ+, r1,r2:ℕk, q1,q2:ℤ. q1·k+r1≤q2·k+r2 ⇒ q1≤q2
.      {division_mono1_sfa}
.      on [ k·n+0≤(a ÷ n)·n+(a rem n) ]
END
```