```
is_member_sublist_lemma  THM

⊢  ∀eq:{T=₂}, x:T, L,M:T List. x(∈eq) L ⇒ L(⊆eq)M ⇒ x(∈eq) M
| by UnivCD
|
1. T : Type
2. eq : {T=₂}
3. x : T
4. L : T List
5. M : T List
6. x(∈eq) L
7. L(⊆eq)M
⊢  x(∈eq) M  by ListInd 4 THEN Reduce 0
|
6. u : T
7. v : T List
8. x(∈eq) v ⇒ v(⊆eq)M ⇒ x(∈eq) M
9. if eq(x,u)→ true₂ else x(∈eq) v fi
10. u(∈eq) M
11. v(⊆eq)M
⊢  x(∈eq) M  by IfThenElseCases 9
|
|\
| .....truecase .....
| 9. eq(x,u) = true₂
| 10. true₂
| 11. u(∈eq) M
| 12. v(⊆eq)M
| ⊢  x(∈eq) M
| | by FwdThru Thm* ∀P:𝔹. P ⟺ P = true₂    {assert_iff_btrue} [9]
| |
| 13. eq(x,u)
| ⊢  x(∈eq) M
| | by FwdThru
| |    Thm* ∀T:Type, eq:{T=₂}.
| |         (∀x,y:T. eq(x,y) ⟺ x = y) & eq ∈ T→T→𝔹
| |    {discrete_equality_properties}
| |    [-1]
| |
| 14. x = u
| ⊢  x(∈eq) M  by HypSubst -1 0
|
.\
. .....falsecase .....
. 9. eq(x,u) = false₂
. 10. x(∈eq) v
. 11. u(∈eq) M
. 12. v(⊆eq)M
. ⊢  x(∈eq) M  by HypBackchain
END
```