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De Mergan's Law
    (AUB)' = A' \cap B'
     (A NB)' = A' UB'
Prove that: (AUB) = A' NB'
 Proof: LHS > x & (AUB)
           => x & AUB
        \Rightarrow x &A \text{ or } x &B
         ⇒ x ∈ A' and x ∈ B'
             x \in (A' \setminus B')
        (AUB)' = A'NB'
     RHS => x & A' n B'
            x \in A' and x \in B'
             x & A or x & B
             x $ (AUB)
              x E (AUB)
           A' N B' = (A UB)'
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From (1) & (2),
[(AUB)' = A' NB']

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Proof: LHS \Rightarrow \times \in (AnB)' = A'UB'

Proof: LHS \Rightarrow \times \in (AnB)'

\times \notin AnB

\times \notin AnB
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* Distributive law

1) Prove that: AU(BNC) = (AUB) n (AUC)

Proof: LHS => 20 & AU (BNC)

 $x \in A$ or $x \in (BNC)$

XEA or [xeB and x EC]

XEA Dr XEB and XEADIXEC

 $x \in (AUB)$ and $x \in (AUC)$

oc & (AUB) N (AUC)

AU(Bnc) = (AUB) n(AUC)

RHS > x & (AUB) n (AUX)

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(SUA) 3 x bma (BUA) 3x
   (23 xra A3x) bona (83x ra A3x)
     (23x bona 83x) so A3x
     x \in A or (x \in (B \cap C))
       XE AU (BAC)
    (AUB) n (AUC) = AU(BRC) - 2
 From (D & Q) AU(BOC) = (AUB) N (AUC)
Prove that: An (BUC) = (AnB) U (Anc)
Proof: LHS > x & AN (BUC)
          (SUB) 3 x bma A 3 x
         [33x ro d3x] bora A3x
         23xbna A3x ra B3xbna A3x
          x E(ANB) De x E (ANC)
            x & (ANB) U (ANC)
        ⇒ An(BUC) = (AnB) U(Anc) -D
   RHS⇒ x & (A NB) U (Anc)
           x & (AnB) or x & (Anc)
          D3x bna A3x ra B3x bna A3x
           (23x ra 83x] bro A3x
            oceA and oce(BUC)
              XE AN (BUC)
         (AMB) U (AMC) = AM (BUC) - 2
  Score (D&C) [AN(BUC) = (AND) U (ANC))
```