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Prova Lógica

2,0

1- a) $(C \vee B) \rightarrow (B \vee C)$

[1] $(C \rightarrow (B \vee C)) \rightarrow ((B \rightarrow (B \vee C)) \rightarrow ((C \vee B) \rightarrow (B \vee C))))$, $p = C$, $q = B$ e $r = (B \vee C)$, usando H8.

[2] $C \rightarrow (B \vee C)$, $q = C$ e $p = B$, usando H7.

[3] $((B \rightarrow (B \vee C)) \rightarrow ((C \vee B) \rightarrow (B \vee C))))$, M.P. linhas 1 e 2.

[4] $B \rightarrow (B \vee C)$, $p = B$, $q = C$, usando H6.

[5] $(C \vee B) \rightarrow (B \vee C)$, M.P. linhas 3 e 4.

b) $(A \wedge (B \wedge C)) \rightarrow B$

2,0

[1] $(A \wedge (B \wedge C)) \rightarrow (B \wedge C)$, $p = A$, $q = (B \wedge C)$, usando H5.

[2] $(B \wedge C) \rightarrow B$, $p = B$ e $q = C$, usando H4.

[3] $((A \wedge (B \wedge C)) \rightarrow (B \wedge C)) \rightarrow (((B \wedge C) \rightarrow B) \rightarrow ((A \wedge (B \wedge C) \rightarrow B)))$, $p = (A \wedge (B \wedge C))$, $q = (B \wedge C)$ e $r = B$, usando transitividade.

[4] $((B \wedge C) \rightarrow B) \rightarrow ((A \wedge (B \wedge C)) \rightarrow B$, M.P. linhas 1 e 3.

[5] $(A \wedge (B \wedge C)) \rightarrow B$, M.P. linhas 2 e 4.

2- b) $(A \rightarrow (B \rightarrow (C \rightarrow D))) \rightarrow (A \rightarrow ((B \wedge C) \rightarrow D)))$

[1] $(B \rightarrow (C \rightarrow D)) \rightarrow ((B \wedge C) \rightarrow D)$, $p = B$, $q = C$, $r = D$, usando 52.

[2] $(A \rightarrow (B \rightarrow (C \rightarrow D))) \rightarrow (A \rightarrow ((B \wedge C) \rightarrow D)))$, Adiciona A com [1].

1,5

CONTINUA

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2-) a) $C \to (B \to (A \vee (B \wedge C)))$

1,5

[1] $((B \wedge C) \to (A \vee (B \wedge C))) \to (B \to (C \to (A \vee (B \wedge C))))$, $p = B$, $q = C$, $r = (A \vee (B \wedge C))$, usando J3.
[2] $(B \wedge C) \to (A \vee (B \wedge C))$, $p = A$, $q = (B \wedge C)$, usando H7.
[3] $B \to (C \to (A \vee (B \wedge C)))$, M.P. linhas 1 e 2.
[4] $C \to (B \to (A \vee (B \wedge C)))$, usando Inv linha 3.

4-) $(A \wedge (B \vee C)) \to ((A \wedge B) \vee (A \wedge C))$

0,2

[1] $(A \wedge B) \to ((A \wedge B) \vee (A \wedge C))$, $p = (A \wedge B)$, $q = (A \wedge C)$, H6
[2] $((A \wedge B) \wedge (A \wedge C)) \to (A \wedge B)$, $p = (A \wedge B)$, $q = (A \wedge C)$, H
[3] $((A \wedge B) \wedge (A \wedge C)) \to ((A \wedge B) \vee (A \wedge C))$, transitividade linhas 1 e 2.

3-) $(A \to (B \to (C \to D))) \to (A \to (B \to (C \to E))) \to (A \to (B \to (C \to (D \wedge E))))$

$\equiv$ Equivalente a ?

X

$(A \to (B \to C)) \to (D \to (E \to (D \wedge E)))$

ou então

$((A \to (B \to C)) \to D) \to (((A \to (B \to C)) \to E) \to ((A \to (B \to C)) \to (D \wedge E)))$, $p = (A \to (B \to C))$, $q = D$ e $r = E$, usando J1.