Introduction to Logic

Problem 3.7 - Fitch System

Given $\neg(p \wedge q)$, use the Fitch system to prove $(\neg p \vee \neg q)$.

Start from the given premises. Apply rules of inference by checking the lines you wish to use as premises and click the button for the desired rule of inference. Reiteration allows you to repeat an earlier item. To delete one or more lines from a proof, check the desired lines and click Delete. Whenever entering expressions, use Ascii characters only. Use ~ for ¬; use & for ∧; use | for ∨; use => for ⇒; and use <=> for ⇔.

Proof Editor

1.	~(p & q)	Premise
2.	~(~p | ~q)	Assumption
3.	~p	Assumption
4.	~p | ~q	Or Introduction: 3
5.	~p => ~p | ~q	Implication Introduction: 4
6.	~p	Assumption
7.	~(~p | ~q)	Reiteration: 2
8.	~p => ~(~p | ~q)	Implication Introduction: 7
9.	~~p	Negation Introduction: 5, 8
10.	p	Negation Elimination: 9
11.	~q	Assumption
12.	~p | ~q	Or Introduction: 11
13.	~q => ~p | ~q	Implication Introduction: 12
14.	~q	Assumption
15.	~(~p | ~q)	Reiteration: 2
16.	~q => ~(~p | ~q)	Implication Introduction: 15
17.	~~q	Negation Introduction: 13, 16
18.	q	Negation Elimination: 17
19.	p & q	And Introduction: 10, 18

20.	~(~p | ~q) => p & q	Implication Introduction: 19
21.	~(~p | ~q)	Assumption
22.	~(p & q)	Reiteration: 1
23.	~(~p | ~q) => ~(p & q)	Implication Introduction: 22
24.	~~(~p | ~q)	Negation Introduction: 20, 23
25.	~p | ~q	Negation Elimination: 24

Goal	~p | ~q	Complete

Assumption | Negation Introduction | Implication Introduction
Reiteration | Negation Elimination | Implication Elimination
Delete | And Introduction | Biconditional Introductio
And Elimination | Biconditional Elimination
Or Introduction
Or Elimination

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