Pontifícia Universidade Católica do Paraná

Disciplina: Resolução de Problemas com Lógica Matemática (RPLM)

Lista de Exercícios 8

* 1. Construa as deduções:
     1. { ( p → q ) , ( p ∧ r ) } ⊨ q
     2. { ( p ∧ q ) , (( p ∨ r ) → s ) } ⊨ ( p ∧ s )
     3. { ( p → ( q → r )) , ( p → q ) , p } ⊨ r
     4. { (( p ∨ q ) → r ) , (( r ∨ q ) → ( p → ( s ↔ t ))) , ( p ∧ s ) } ⊨ ( s ↔ t )
     5. { ( p → ¬ q ) , ( ¬ p → ( r → ¬ q )) , (( ¬ s ∨ ¬ r ) → ¬ ¬ q ) , ¬ s } ⊨ ¬ r
     6. { ((p ∧ q ) → r ) , ( r → s ) , ( t → ¬u ) , t , ( ¬ s ∨ u ) } ⊨ ¬ ( p ∧ q )
     7. { ( p → q ) , ( q → r ) , ( s → t ) , ( p ∨ s ) } ⊨ ( r ∨ t )
     8. { ( p → q ) , ( ¬ r → ( s → t )) , ( r ∨ ( p ∨ s )) , ¬ r } ⊨ ( q ∨ t )
     9. { ( p → r ) , ( q → s ) , ¬ r , ( p ∨ q ) ∧ ( r ∨ s ) } ⊨ s
     10. { ( p → q ) , ( q → r ) , ( r → s ) , ¬ s , ( p ∨ t ) } ⊨ t
     11. { ( p → q ) ∧ ( r → s ) , ( t → u ) , ( u → v ) , ¬ q ∨ ¬ v } ⊨ ¬ p ∨ ¬ t
     12. { ( p ∧ q ) , ( p → r ) } ⊨ ( p ∧ r )
     13. { ( ¬ p ∧ q ) , ( r → p ) } ⊨ ( ¬ p ∧ ¬ r )
     14. { ( ¬ p → q ) , ¬ ( r ∧ s ) , ( p → ( r ∧ s )) } ⊨ ¬ p ∧ q
     15. { ( p ∨ q ) , ¬ r , ( q → r ) } ⊨ p
     16. { ( p ∧ q ) , ( r ∨ s ) , ( p → ¬s ) } ⊨ r
     17. { p , ( p → ¬ q ) , ( q ∨ r ) } ⊨ p ∧ r
     18. { ¬ p , ( p ∨ ( q ∨ r )) , ¬ r } ⊨ q
     19. { p ∨ ¬ q , ¬ ¬ q , ( p → ( r ∧ s )) } ⊨ s
     20. { ( p → q ) , ¬ q , ( p ∨ r ) } ⊨ r
     21. { ( p ∨ ¬ q ) , ( r → ¬ p ) , r } ⊨ ¬ q
     22. { ¬ p ∨ ¬ q , ¬ ¬ q , ( r → p ) } ⊨ ¬ r
     23. { ( p → ¬ q ) , ¬ ¬ q , ( ¬p → ( r ∨ s )) }⊨ ( r ∨ s )
     24. { ( p ∧ q ) , ( p → r ) , ( r ∧ s ) → ¬ t , ( q → s ) } ⊨ ¬ t
     25. { ¬ p , ( q → p ) , (( ¬ q ∨ r ) → s ) } ⊨ s
     26. { (( p ∧ q ) → s ) , r , ( r → ( p ∧ q )) } ⊨ ( s ∨ q )
     27. { ( p ∧ ¬ q ) , ( r → q ) , ( r ∨ s ) , ( p ∨ s ) → t } ⊨ t
     28. { ( p ∨ ¬ q ) , ( ¬ q → r ) , ( p → s ) , ¬ r } ⊨ s
     29. { ( p → q ) , ( q → ¬ r ) , ¬ ¬ r , ( p ∨ ( s ∧ t )) } ⊨ s
     30. { ( p ∨ q ) , ( q → r ) , ( p → s ) , ¬ s } ⊨ ( r ∧ ( p ∨ q ))
     31. { ( ¬ p ∨ ¬ q ) , ( ¬ q → ¬ r ) , ( ¬ p → t ) , ¬ t } ⊨ ¬ r ∧ ¬ t
     32. { ( r → t ) , ( s → q ) , ( t ∨ q ) → ¬ p , ( r ∨ s ) } ⊨ ¬ p
     33. { ( p → ¬ q ) , ( ¬ q → ¬ s ) , (( p → ¬ s ) → ¬ t ) , ( r → t ) } ⊨ ¬ r
     34. { (( p ∨ q ) → ¬ r ) , ( s → p ) , ( t → q ) , ( s ∨ t ) } ⊨ u ∨ ¬ r