# Lista de Exercícios 1

## Prof. Douglas O. Cardoso
## CEFET-RJ Petrópolis

1. $a \to b, b \to c, a \vdash c$

2. $a \to b, b \to c \vdash a \to c$

3. $(p \lor q) \to r \vdash p \to (q \to r)$

4. $(p \land q) \to r \vdash p \to (q \to r)$

5. $p \to (q \to r) \vdash (p \land q) \to r$

6. $a \to b, b \to c \vdash a \to (b \land c)$

7. $(a \lor b) \to c, d \to a \vdash d \to c$

8. $b \to (c \land a), a \to d, b \land c \vdash d$

9. $(a \land b) \to c, (c \lor d) \to e \vdash (a \land b) \to (e \lor f)$

10. $a \lor b, b \to \neg\neg c \vdash (a \to c) \to c$

11. $(a \lor b) \to c, c \to (d \land e), a \vdash e \lor f$

12. $(a \lor b) \to c, c \to d \vdash (a \land b) \to (d \land c)$

13. $a \to (b \land c), (d \lor f) \to a \vdash d \to (b \lor f)$

14. $b \land c, (a \land b) \to (c \to d) \vdash a \to (d \lor e)$

15. $a \to (b \land c), (b \to c) \to d \vdash a \to (b \land d)$

16. $a \lor b, (a \lor c) \to d, b \to d \land c \vdash d$

17. $a \lor b, d, b \to a, (a \land d) \to c, (a \land d) \to e, c \to e \vdash e$

18. $b, (r \lor s) \to a, r \lor s, (a \land r) \to c, (b \land s) \to c \vdash c$

19. $b, (a \land b) \to (c \lor d), (a \land c) \to e, d \to (e \land f) \vdash a \to e$

20. $b \to a, c \to b, b \lor c, (c \to a) \to e, (d \land b) \to e, e \to (f \land g) \vdash d \to f$

21. $a \to (b \lor c), b \to d, f \to (d \land e), a \lor f, (c \land a) \to d \vdash d$