Exercise 41: (Relations and directed graphs)

 \mathbf{a}

 \mathbf{b}

 \mathbf{c}

Exercise 42: (Rules)

Exercise 43: (More rules)

 \mathbf{a}

b

 \mathbf{c}

Exercise 44: (Tautologies)

a

b

 \mathbf{c}

 \mathbf{d}

 \mathbf{e}