Let \( x \) and \( y \) be binary variables. Simplify

(a) \[ x := x = y. \quad x := x = y \]
\[ \implies x := x = y. \quad x' = (x = y) \land y' = y \]
\[ \implies x' = ((x = y) = y) \land y' = y \]
\[ \implies x' = (x = (y = y)) \land y' = y \]
\[ \implies x' = x \land y' = y \]
\[ \implies ok \]

(b) \[ x := x + y. \quad y := x + y. \quad x := x + y \]
\[ \implies x := x + y. \quad y := x + y. \quad x' = (x + y) \land y' = y \]
\[ \implies x := x + y. \quad x' = (x + (x + y)) \land y' = (x + y) \]
\[ \implies x' = ((x + y) + ((x + y) + y)) \land y' = ((x + y) + y) \]
\[ \implies x' = ((x + x) + (y + y)) \land y' = (x + (y + y)) \]
\[ \implies x' = ((\bot + \bot) + y) \land y' = (x + \bot) \]
\[ \implies x' = y \land y' = x \]