Exercises

E3.31 [OOV] Let X, Y sets. Let ϕ, ψ logical propositions be; x, a are free variables in ϕ, and y, b are free in ψ. We also assume that a, b can only be true or false, while $x \in X, y \in Y$. Consider the following formulae. Which ones are well formed? What variables are free in them?

$$b \wedge (\forall x, \phi)$$

$$(\exists y, \psi) \vee (\forall x, \phi)$$

$$\forall x, \forall b, \big(\phi \wedge (\psi \vee b)\big)$$

$$a \vee (\forall x, \forall a, \phi)$$

$$(\exists x, \psi) \wedge (\forall x, \phi)$$

Solution 1. *[OOW]*