

4.6.3.2 Dimostrare che le seguenti formule sono valide:

$$(a) \quad ((\forall x. (P(x) \vee \neg Q(x))) \Leftrightarrow \neg(\exists x. (\neg P(x) \wedge Q(x))))$$

$$(b) \quad (\neg(\forall x. \neg(P(x) \Rightarrow (\exists y. Q(y)))) \Leftrightarrow (\exists x. \neg(P(x) \wedge (\forall y. \neg Q(y))))))$$

$$(c) \quad (((\forall x. P(x)) \wedge (\exists x. Q(x))) \Rightarrow (\exists x. (P(x) \Rightarrow Q(x))))$$