ÁLGEBRA (Ciencias) – año 2020

Lógica

Negar las proposiciones dadas de los dos ejercicios anteriores, obteniendo una forma equivalente.

Demostración.

$$
\begin{aligned}
& \sim [(\forall x)(r(x) \to ((\exists y)(\sim r(y) \wedge q(x,y))) \\
\iff & (\exists x) \sim (r(x) \to ((\exists y)(\sim r(y) \wedge q(x,y))) \\
\iff & (\exists x)(r(x) \wedge \sim ((\exists y)(\sim r(y) \wedge q(x,y))) \\
\iff & (\exists x)(r(x) \wedge ((\forall y) \sim (\sim r(y) \wedge q(x,y))) \\
\iff & (\exists x)(r(x) \wedge (\forall y)(r(y) \vee \sim q(x,y))).
\end{aligned}
$$

$$
\begin{aligned}
& (\text{como} \sim [(\exists x)(p(x))] \iff (\forall x)(\sim p(x))) \\
& (\text{como} \sim (p(x) \to q(x)) \iff p(x) \wedge \sim q(x)) \\
& (\text{como} \sim ((\exists x)(p(x))) \iff (\forall x)(\sim p(x))) \\
& (\text{como} \sim (p(x) \wedge q(x)) \iff (\sim p(x) \vee \sim q(x)))
\end{aligned}
$$

□