PREDICADO

$\overbrace{P(x)}$ = x é um número natural

Px

$\neg(\forall x)(Px \to Qx) \iff$

$(\exists x)\neg(Px \to Qx) \iff$

$(\exists x)\neg(\neg Px \vee Qx) \iff$

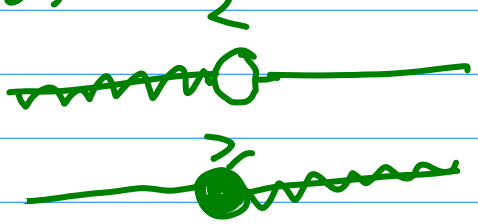
$(\exists x)(Px \wedge \neg Qx)$

$\neg[(\forall x \in A)(\exists y \in B)(x < y)] \iff$

$(\exists x \in A)\neg[(\exists y \in B)(x < y)] \iff$

$(\exists x \in A)(\forall y \in B)\neg[(x < y)] \iff$

$(\exists x \in A)(\forall y \in B)(x \geq y)$



$$\neg[(\forall x)(x \in \mathbb{R} \rightarrow x \in \mathbb{N})]$$

$$(\exists x)(x \in \mathbb{R} \wedge x \notin \mathbb{N})$$

d)

$$\neg[(\forall x)(\forall y)(x+y<2 \rightarrow (x \geq 0 \vee y<0))]$$

$$(\exists x)(\exists y)(x+y<2 \wedge (x<0 \wedge y \geq 0))$$

c)

D = conjunto dos dias úteis.

$$(\forall x \in D)(Jx)$$

$J(x)$ = João vai de carro p/ trabalho no dia x.

$$\neg[(\forall x \in D)(Jx)]$$

$$(\exists x \in D)(\neg Jx)$$

$\neg (\forall x)(Hx \rightarrow Bx)$

$(\exists x)(Hx \wedge \neg Bx)$

$H(x) = x$ é homem

$B(x) = x$ é bom cozinheiro

$H = \{\text{homens}\}$

$\neg (\forall x \in H)(Bx)$

$(\exists x \in H)(\neg Bx)$

e) ⓔ

a) $(\exists x \in \mathbb{N})(x^3 = 27)$

b) $(\exists x \in \mathbb{N})(x > 1.000.000)$

c) $\exists x \in \mathbb{I}$

c) $(\exists x)(\forall p \in \mathbb{N}, \forall q \in \mathbb{N}, x \neq p/q \vee q = 0)$

$x \in \mathbb{Q}$ se $\exists p \in \mathbb{N}, \exists q \in \mathbb{N}, x = p/q$ e $q \neq 0$

d) $PAR(x) = x$ é par

$PRIMO(x) = x$ é primo

$(\exists x)(PAR(x) \wedge PRIMO(x))$

a) $(\forall x \in \mathbb{N})(x^3 \neq 27)$

b) $(\forall x \in \mathbb{N})(x \geq 0)$

c) $(\forall x \in \mathbb{Q})(x \in \mathbb{R})$

$(\forall x)(x \in \mathbb{Q} \rightarrow x \in \mathbb{R})$

d) $(\forall x)(PRIMO(x) \wedge x > 2 \rightarrow \neg PAR(x))$

$AMA(x,y)$ = x ama y

$LOVE(x,y)$ = x love y

$(\forall x)(\exists y)(LOVE(x,y))$

$(\forall x)(LOVE(x,lm))$

$A(x)$ = x é' alto

$B(x)$ = x é' baixo

$(\forall x)(Ax \vee Bx)$

a) $(\exists! x \in A)(x+3=8)$ ✓ $A=\{2,3,4,5\}$

b) F $p|x=2$ $x+3 \neq 8$

c) F $p|x=2$ $x+3 \not> 5$

d) F

e)