Math 2283 - Introduction to Logic

Quiz #12 - 2006.10.30

Solutions

Which of the following wff's are open and which are closed? If the wff is open, underline all free variables. Here, G is a two-place predicate and T a three-place predicate.

1. $\forall x(\exists y(Gxy \Rightarrow Tyyx) \wedge Gxx)$

Closed.

2. $\forall x\neg(\exists y(Gxy \Rightarrow Tyyx) \wedge G\underline{y}x)$

Open.

3. $\neg(\exists y(G\underline{x}y \Rightarrow \forall xTyyx) \wedge \forall yGyy)$

Open.

4. $\forall x\neg(\exists y(Gxy \Rightarrow Tyyx) \wedge Gxx)$

Closed.

5. $\neg(\exists y(G\underline{x}y \Rightarrow \forall xTyyx) \wedge G\underline{yy})$

Open.