

# Math 2283 - Introduction to Logic

Quiz #8 - 2010.10.01

Solutions

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Recall, if you will, that we were able to define the relation of a class  $K$  being a *subclass* of the class  $L$  ( $K \subset L$ ) in terms of elements of the universe of discourse:

$$K \subset L \leftrightarrow A_x(x \in K \rightarrow x \in L)$$

Let us use the symbol  $\diamond$  to represent the relation of being *disjoint*. Construct a definition of the classes  $K$  and  $L$  being disjoint ( $K \diamond L$ ) in terms of the elements of the universe of discourse:

$$\begin{aligned} K \diamond L &\leftrightarrow A_x\left(\sim [x \in K \wedge x \in L]\right) \\ &\leftrightarrow A_x\left((\sim x \in K) \vee (\sim x \in L)\right) \end{aligned}$$