

Math 1303 - Math in the Liberal Arts

Quiz #1 - 2014.08.25

Solutions

For this quiz, define the following statements:

p : Tuck is polydactyl cat.

q : Lyra is a tuxedo manx cat.

r : Lyra and Tuck get along.

Rewrite the following sentences in symbolic logic form:

1. Tuck is polydactyl and Lyra is a tuxedo manx, but they do not get along.

$$(p \wedge q) \wedge \sim r$$

2. If Tuck was not polydactyl, then Lyra and Tuck would get along.

$$\sim p \rightarrow r$$

3. If Lyra and Tuck got along, then Lyra would not be a tuxedo manx cat.

$$r \rightarrow \sim q$$

Convert the following symbolic logic statements into English sentences:

4. $r \leftrightarrow (\sim p \vee \sim q)$.

Lyra and Tuck would get along, if and only if, Tuck was not polydactyl or Lyra was not a manx.

5. $\sim (\sim p \rightarrow r)$

It is not true that: If Tuck was not polydactyl, then Lyra and Tuck would get along.