

QUIZ 3 - MATH 2000

February 5, 2009

Time: 15 minutes

LAST NAME:

FIRST NAME:

Question 1

For statements P and Q , show that $(\sim Q) \implies (P \wedge (\sim P))$ and Q are logically equivalent.

Question 2

Give the definition of a contradiction.

Question 3

Consider the open sentences

$$P(x) : (x + 2)(x - 3) = 0 \quad \text{and} \quad Q(x) : x^2 = 4$$

over the domain $S = \{-2, 0, 2, 3\}$.

- (i) State in words the open sentence $P(x) \Leftrightarrow Q(x)$.
- (ii) Determine the truth value of $P(x) \Leftrightarrow Q(x)$ for all values of $x \in S$.