Math 1010–Homework

1. HW1 (to be updated with more problems)

Problem 1. Indicate if each statement is true or false.

(a) A statement and its negation may be both false.
(b) $3 \leq 5$ and 10 is odd.
(c) $x > 0$ or $x^3 \leq 0$.
(d) If 2 is odd, then 4 is even.
(e) 2 is odd if and only if 4 is odd.
(d) $xy > 0$ whenever $x > 0$ and $y > 0$.

Problem 2. Construct the truth table to show that

$$\sim (p \vee q) \equiv (\sim p) \wedge (\sim q),$$
$$\sim (p \Rightarrow q) \equiv p \wedge (\sim q).$$

Problem 3. Write the negation of each statement.

(a) A circle of radius 1 has smaller area than a square of side 1.
(b) It is sunny and windy.
(c) I can finish the homework provided that I attend the class.
(d) I can speak Spanish or Japanese.

MSC Classification: .