

# Math 2283 - Introduction to Logic

Quiz #4 - 2006.09.08

Solutions

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Determine if the following arguments are valid or invalid.

1)

$$p \vee q$$

$$p \rightarrow q$$

$$\therefore p$$

| $p$ | $q$ | $p \vee q$ | $p \rightarrow q$ | $p$ |
|-----|-----|------------|-------------------|-----|
| T   | T   | T          | T                 | T   |
| T   | F   | T          | F                 | T   |
| F   | T   | T          | T                 | F   |
| F   | F   | F          | F                 | F   |

The argument is invalid due to row 3 of the truth table.

2)

$$p \wedge q$$

$$p \rightarrow q$$

$$\therefore p$$

| $p$ | $q$ | $p \wedge q$ | $p \rightarrow q$ | $p$ |
|-----|-----|--------------|-------------------|-----|
| T   | T   | T            | T                 | T   |
| T   | F   | F            | F                 | T   |
| F   | T   | F            | T                 | F   |
| F   | F   | F            | T                 | F   |

The argument is valid.