**NAME**: SIMEON NORTEY

**INDEX NUMBER**: 4709715

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ASSIGNMENT 1

1. Find the truth table for P → Q and ~P V Q

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P | Q | ~P | P → Q | ~P→Q |
| T | T | F | T | T |
| T | F | F | F | T |
| F | T | T | T | T |
| F | F | T | T | F |

1. Prove the following equivalency ~(~P) ≡ P

|  |  |  |
| --- | --- | --- |
| P | ~P | ~(~P) |
| T | F | T |
| F | T | F |

SINCE THE TRUTH VALUES OF P IS EQUIVALENT TO ~(~P), IT IMPLIES ~(~P) ≡ P

1. (P V Q) ≡ (~P → Q)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| P | Q | ~P | P V Q | ~P→Q |
| T | T | F | T | T |
| T | F | F | T | T |
| F | T | T | T | T |
| F | F | T | F | F |

From the truth table above, the truth values of P V Q is equivalent to ~P→Q. This implies (P V Q) ≡ (~P → Q)