

Review Problems

1. Produce the truth table for the following propositions:

a. $\neg(x \wedge y) \rightarrow (z \vee y)$

| x | y | z | $(x \wedge y)$ | $\neg(x \wedge y)$ | $(z \vee y)$ | $\neg(x \wedge y) \rightarrow (z \vee y)$ |
|---|---|---|----------------|--------------------|--------------|---|
| T | T | T | T | F | T | T |
| T | T | F | T | F | T | T |
| T | F | T | F | T | T | T |
| T | F | F | F | T | F | F |
| F | T | T | F | T | T | T |
| F | T | F | F | T | T | T |
| F | F | T | F | T | T | T |
| F | F | F | F | T | F | F |

b. $a \leftrightarrow (b \rightarrow c)$

| a | b | c | $b \rightarrow c$ | $a \leftrightarrow (b \rightarrow c)$ |
|---|---|---|-------------------|---------------------------------------|
| T | T | T | T | T |
| T | T | F | F | F |
| T | F | T | T | T |
| T | F | F | T | T |
| F | T | T | T | F |
| F | T | F | F | T |
| F | F | T | T | F |
| F | F | F | T | F |