

Simplifying a logical expression

Can we simplify these?

▶ $\neg (A \text{ AND } B)$

Solution:

$A \text{ AND } B$ is true when both A or B are true.

Hence it is false if and only if at least one of A or B is false.

In other words:

$$\neg(A \text{ AND } B) \equiv \neg A \text{ OR } \neg B$$

Note the effect of \neg : AND changes to OR and vice-versa, and X changes to $\neg X$.