Boolean Logic

A && B

|  |  |  |
| --- | --- | --- |
| A | B | Result |
| True | True | True |
| True | False | False |
| False | True | False |
| False | False | False |

A || B

|  |  |  |
| --- | --- | --- |
| A | B | Result |
| True | True | True |
| True | False | True |
| False | True | True |
| False | False | False |

Common Boolean Laws

Law of Absorption

* a && (a || b) = a
* a || (a && b) = a

Distributive Law

* a && (b || c) = (a && b) || (a && c)
* a || (b && c) = (a || b) && (a || c)

DeMorgan’s Law

* !(a || b) = !a && ! b
* !(a && b) = !a || ! b

Short Circuit Evaluation

* a || b: if a is true, b is never evaluated
* a && b: if a is false, b is never evaluated
  + This is often used to check for validity before checking for correctness (Lab 22: #9 – Kitty Map)