

Now Consider Three New Kinds of Operators

Let's consider some new operators
(we'll learn more later, too).

Let's look at these:

- logical operators (and shortcutting)
- conditional operator
- modification operators

Three Logical Operators

Logical operators in **C** include

- AND: **&&**
- OR: **||**
- NOT: **!**

Logical operators operate on truth values
(again, **0 is false**, and **non-zero is true**).

Logical operators

- **evaluate to 0 (false)**, or
- **evaluate to 1 (true)**.

Logical Operators Depend only on True/False in Operands

Declare: `int A = 120; int B = 42;`

Then...

`(0 > A || 100 < A)` evaluates to **1**
`(120 == A && 3 == B)` evaluates to **0**
`!(A == B)` evaluates to **1**
`!(0 < A && 0 < B)` evaluates to **0**
`!(B + 78) == (!A)` evaluates to **1**
 (So no bitwise calculations, just true/false.)

Remember these Simple Boolean Properties?

Easy, but useful to commit to memory for
analyzing circuits...

$$\begin{array}{ll}
 1 + A = 1 & 0 \cdot A = 0 \\
 1 \cdot A = A & 0 + A = A \\
 A + A = A & A \cdot A = A
 \end{array}$$

(Each row give
Remember these
Boolean properties
from ECE120?)