

Truth Tables

Create truth tables for each. As you go, note any expressions that are equivalent!

1. $A \ \&\& \ !A$
2. $A \ || \ !A$
3. $A \ \&\& \ B$
4. $A \ || \ B$
5. $!A \ \&\& \ B$
6. $A \ \&\& \ !B$
7. $!(A \ \&\& \ B)$
8. $!A \ || \ !B$
9. $!(A \ || \ B)$
10. $!A \ \&\& \ !B$
11. $A \ || \ (A \ \&\& \ B)$
12. $A \ \&\& \ A$
13. $A \ || \ A$
14. $!!A$
15. $A \ \&\& \ (B \ || \ C)$
16. $(A \ \&\& \ B) \ || \ (A \ \&\& \ C)$
17. $A \ || \ (B \ \&\& \ C)$
18. $(A \ || \ B) \ \&\& \ (A \ || \ C)$
19. $!(A \ \&\& \ B \ \&\& \ C)$
20. $!A \ || \ !B \ || \ !C$

Boolean Expressions

Can you find the original boolean expression that results in each of the truth tables below?

Two-Variable Expressions

Example 1:

A	B	Result
F	F	T
F	T	T
T	F	T
T	T	F

Example 2:

A	B	Result
F	F	F
F	T	T
T	F	T
T	T	F

Example 3:

A	B	Result
F	F	T
F	T	F
T	F	F
T	T	F

Example 4:

A	B	Result
F	F	T
F	T	T
T	F	F
T	T	T

Example 5:

A	B	Result
F	F	T
F	T	F
T	F	T
T	T	T

Example 6:

A	B	Result
F	F	F
F	T	T
T	F	F
T	T	T

Three-Variable Expressions

Example 7:

A	B	C	Result
F	F	F	F
F	F	T	T
F	T	F	T
F	T	T	T
T	F	F	T
T	F	T	T
T	T	F	T
T	T	T	T

Example 8:

A	B	C	Result
F	F	F	F
F	F	T	F
F	T	F	F
F	T	T	T
T	F	F	F
T	F	T	T
T	T	F	T
T	T	T	T