

Here is an example for a quiz on truth tables. The problem is #7 from Exercise IV from the Homework. Attempt a table on your own first, then compare with the answer below.

7. $R \vee \sim R$

$R \supset (F \bullet S)$

$\sim R \supset \sim(F \vee S) \quad \therefore \sim(F \bullet \sim S)$

Note that in this particular problem, if you understand the concept of validity, there is a very big short cut in judging this argument to be valid. The conclusion is false in only two lines (#s 2 & 6). Because these then are the only lines that could show all true premises and a false conclusion, these are the only lines you would have to check. It is not necessary to know how to do the short cuts to do well on constructing truth tables, but as in life, if you know major concepts it makes things easier and saves lots of time.

RFS	p1 $R \vee \sim R$	p2 $R \supset (F \bullet S)$	p3 $\sim R \supset \sim(F \vee S)$	c $\sim(F \bullet \sim S)$
TTT	T	T T	F T FT	T F
TTF	T	F F	F T FT	F T
TFT	T	F F	F T FT	T F
TFF	T	F F	F T TF	T F
FTT	T	T T	T F FT	T F
FTF	T	T F	T F FT	F T
FFT	T	T F	T F FT	T F
FFF	T	T F	T T TF	T F

Notice that line 2 has a false conclusion. But premise 2 also is false on this line. Also, line 6 has a false conclusion, but so is premise 3 on this line. So, no line has all true premises and a false conclusion. So, **valid argument**.

Notice that in doing the mechanics of the truth table, the little c is above the (\sim) sign indicating that the negation is the major connective for the conclusion. This means that you have to figure out the truth value result for $F \bullet \sim S$ and negate the result. The same situation exists for the consequent of premise 3. You have to figure out $(F \vee S)$ and then negate that result to get $\sim(F \vee S)$.