

Math 117: Statements

Statement: _____

Counterexample: _____

Consider the statements $p, q,$ and r given below, and fill in the table:

p : 7 is prime

q : 10 is odd

r : $2^2 = 8$

Statement	Symbols	T/F
7 is prime or 10 is odd	_____	_____
It is not the case that 7 is prime or 10 is odd	_____	_____
7 is not prime and 10 is not odd	_____	_____
If 7 is prime, then 10 is odd	_____	_____
If 10 is odd or $2^2 = 8$, then 7 is not prime	_____	_____
If 10 is odd implies 7 is prime, then $2^2 \neq 8$.	_____	_____

Let p and q be statements. The truth table for $p \Rightarrow q$ is given by:

p	q	$p \Rightarrow q$
T	T	
T	F	
F	T	
F	F	

Therefore, the *only* way for $p \Rightarrow q$ to be false is _____.

Describe the negation of $p \Rightarrow q$: $\sim (p \Rightarrow q) \Leftrightarrow$ _____.