

1. Given a: $y < 6$
 b: $y > 1$

Let the domain = $\{1, 2, 3, 4, 5, 6, 7, 8\}$

- a) For what values of y is $a \wedge b$ true? **$y = \{2, 3, 4, 5\}$**
 b) For what values of y is $a \vee b$ true? **$y = \{1, 2, 3, 4, 5, 6, 7, 8\}$**

2. Given r: I am an honor student.
 s: I play football.

Write the statement represented by each of the following:

- a) $\sim r$ **I am not an honor student.**
 b) $r \wedge s$ **I am an honor student and I play football.**
 c) $r \wedge \sim s$ **I am an honor student and I do not play football.**
 d) $\sim r \wedge s$ **I am not an honor student and I play football.**
 e) $r \vee s$ **I am an honor student or I play football.**
 f) $r \vee \sim s$ **I am an honor student or I do not play football.**

3. Create the following truth table for the statements given in problem 2.

r	s	$\sim r$	$\sim s$	$r \wedge s$	$r \wedge \sim s$	$\sim r \wedge s$	$r \vee s$	$r \vee \sim s$
T	T	F	F	T	F	F	T	T
T	F	F	T	F	T	F	T	T
F	T	T	F	F	F	T	T	F
F	F	T	T	F	F	F	F	T