

1. Given $p: x < 4$
 $q: x > 1$

Let the domain = {1, 2, 3, 4, 5}

- a) For what values of x is $p \wedge q$ true? $X = \{2, 3\}$
 b) For what values of x is $p \vee q$ true? $X = \{1, 2, 3, 4, 5\}$

2. Given $p: I \text{ eat cold cereal for breakfast.}$
 $q: I \text{ play football.}$

Write the statement represented by each of the following:

- a) $\sim p$ I do not eat cold cereal for breakfast.
 b) $p \wedge q$ I eat cold cereal for breakfast and I play football.
 c) $p \wedge \sim q$ I eat cold cereal for breakfast and I do not play football.
 d) $\sim p \wedge q$ I do not eat cold cereal for breakfast and I play football.
 e) $p \vee q$ I eat cold cereal for breakfast or I play football.
 f) $p \vee \sim q$ I eat cold cereal for breakfast or I do not play football.

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

p	q	$\sim p$	$\sim q$	$p \wedge q$	$p \wedge \sim q$	$\sim p \wedge q$	$p \vee q$	$p \vee \sim q$
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