Exam 1 Review (Ch. 1, 2, 3)

1) $U = \{1,2,3,4,5,6,7,8,9\}$
$A = \{1,3,4,5\}$
$B = \{2,4,6,7\}$
find: a) $A \cap B'$
b) $(A \cup B)'$
c) $A' \cup B'$
d) $n(A \cup B')$

2) If today is not sunny, then I will go to the movies.
Write the:
a) converse
b) contrapositive
c) inverse
d) negation

3) Determine whether the following compound statement is a tautology, self-contradiction or neither.
$(p \to q) \wedge (\sim q \leftrightarrow \sim p)$

4) Is the following agrument valid or invalid?
$\sim p \to q$
$\sim q$
$\therefore p$

5) True or False
a) $\{2\} \in \{1,2,3\}$
b) $\{a,b\} \in \{\{a,b\}, c\}$
c) $\{\{c\}\{$
d) $\{\{ \subseteq \{1,2\}$
e) $\emptyset \subseteq \{\{$
f) mon. $\notin \{x \mid x$ is a day of the week$\}$

6) $A = \{1, 2, 3, 4\}$

a) find $n(A) =$

b) number of subsets

c) number of proper subsets

7) Are the sets equal, equivalent or neither?

a) $A = \{1, 2\}$ $B = \{0, 1, 0, 1, 0\}$

b) $A = \{1, 1, 1, 1\}$ $B = \{1\}$

c) $A = \{a, b, c\}$ $B = \{0, 1, 0, 1, 1\}$

8) Let $N = \{x \mid x \in \text{natural \#'s}, 9 < x < 13\}$

a) Express using roster method

b) find $n(N)$

c) Find number of subsets and proper subsets

d) List the proper subsets

9) Set B contains 20 elements, set A contains 8 elements and 5 elements are common to both set A and B.

Find $n(A \cup B)$

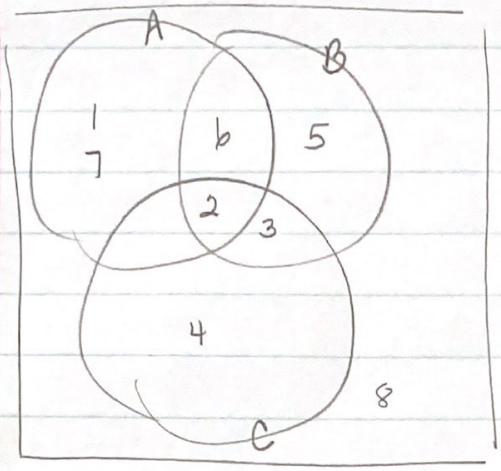
10) p: $3 + 5 = 8$

q: $2 * 7 = 20$

find: a) $p \wedge \sim q$

b) $\sim q \rightarrow \sim p$

c) $\sim (\sim p \leftrightarrow q)$

11) 

find $(A' \cap B) \cup C'$

12) In a math class of 25 students, 10 took math, 13 took English and 6 took neither math nor English.

a) How many took only English?

b) math and English?

c) math or English?

Also, review:

* inductive, deductive reasoning
* patterns
* word problems
* estimation with circle graphs
* counter examples
* mathematical modeling
* translate words $\longleftrightarrow$ symbols
* Determine if something is a statement