(10pts) NAME (printed neatly): _____

(5pts) Section Number (circle correct section): 521(9:10am) 522 (10:20am) 514 (11:30am) 525(1:50pm)

1. Let set A = {n, r, q}, B = {t, n, v, d} and C = {r, v, f}, such that $U = A \cup B \cup C$. Find the following.

a. (10pts) $A \cup B =$ {n, r, q, t, v, d}

b. (10pts) $n(A) = 3$

c. (10pts) $n\left(A^C \cap C\right) = n\left(\{t, v, d, f\} \cap \{r, v, f\}\right) = n\left(\{v, f\}\right) = 2$

d. (10pts) $\left(B \cup C^C\right)^C = B^C \cap C = \{r, f\}$

e. (10pts) List an element of set C.

r or v or f

Note there should not be the curly brackets around these elements.

f. (5pts) List a subset of set A that is not proper.
A = {n, r, q} or A or {n, r, q},

g. (5pts) How many subsets does set B have?
$2^{n(B)} = 2^4 = 16$

h. (10pts) $A \cap \left(B^C\right)^C \cap C = A \cap B \cap C = \varnothing$ or = { }

i. (5pts) $U^C = \varnothing$ or { }

2. (10pts) If $n\left(M \cup N\right) = 41$, $n\left(M \cap N\right) = 7$, and $n\left(M\right) = 19$, what is the value of $n\left(N\right)$?

$n\left(M \cup N\right) = n\left(M\right) + n\left(N\right) - n\left(M \cap N\right)$ (or should have appropriate Venn diagram)
$41 = 19 + n\left(N\right) - 7$
$n\left(N\right) = 29$