MATH M118   Practice Test Chapter 2

Let A = {1, 2, 3, 4, 5} and B = {1, 2, 3}

1. Find n(A x B)

2. Find n(A ∩ B)

3. Find n(A ∪ B)

4. How many subsets can be constructed from a set containing 6 elements?

5. At Garfield High, 11 students take Algebra but not French, 21 students take French but not Algebra and 46 students take at least one of these two subjects. How many students take both Algebra and French?

6. Let A = {1, 2, 3}, B = {3, 4, 5}, and C = {4, 5, 6} be subsets of
U = {1, 2, 3, 4, 5, 6, 7}.   Find A ∩ (B' ∪ C).

7. A set U is partitioned into three subsets F, G and H. The number of elements in F is three times that of H, and the number in H is twice the number in G. If n(U) = 45, find n(F).

8. Of 60 students who were surveyed, 26 had seen movie A, 32 had seen movie B and 7 had seen both movies. How many had seen neither movie?

9. 100 students were surveyed about their music preferences regarding rock, blues and country. Given the information below, how many students like only one of the three types of music?

72 like rock	22 like rock and blues	12 like all 3
40 like blues	20 like rock and country	
37 like country	27 like country and blues	

10. Let A and B be subsets of U, n(U) = 50, n(A' ∩ B') = 10 and
n(B − A) = n(A − B) = 15. Find n(A ∩ B).

Determine if each of the following statements is true or false.

11. $B \cap C \subseteq B \cup C$

12. U − A = A'

13. $(G \cup H)' = G' \cap H'$

14. $E − F = E \cap F'$

Given the sets A = {1, 2, 3} and B = {e, u}, for each statement below, which of the following symbols should be placed in the blank to make it a true statement?

(a) ∈   (b) ∉   (c) ⊆   (d) =

15.   (e, 2) _____ A x B

16.   {u} _____ B

17.   2 _____ A ∪ B

18.   {2, 3} _____ A ∪ B

19.   u _____ B

For each of the following, draw a Venn diagram with 2 subsets A and B and shade the part of the diagram that represents:

20. A′ ∪ B

21. A′ ∩ B′