

MAT 111 – Practice Chapter 2 Test

1. Express the set using set-builder notation

{spring, summer, winter, fall}

2. Express the set using the roster method

The set of months of the year that start with the letter J

3. Find the cardinal number for set A. Set A = {Cabrini College, Villanova University, Eastern College, Rosemont College, Immaculata University}

4. Are these sets equal? Give a reason for your answer

{a, b, c, d, e}                      {a, b, b, c, c, c, d, d, d, d, e, e, e, e, e}

5. Are these sets equivalent? Give a reason for your answer

{a, b, c, d, e}                      {a, a, a, a, a, b, b, b, b, c, c, c, d, d, e}



Let  $U = \{ @, \#, \$, \%, \wedge, *, ! \}$

Let  $A = \{ @, \$, \wedge, ! \}$

Let  $B = \{ \%, \wedge, * \}$

Let  $C = \{ @, ! \}$

Find each of the following sets:

11.  $A \cap C'$

12.  $B' \cup C$

13.  $(A \cap C)'$

14.  $(A \cup B)'$

15.  $A \cap U$

Let  $U = \{ @, \#, \$, \%, \wedge, *, ! \}$

Let  $A = \{ @, \$, \wedge, ! \}$

Let  $B = \{ \%, \wedge, * \}$

Let  $C = \{ @, ! \}$

Find each set

16.  $A \cup (B \cap C)$

17.  $A' \cup (B' \cap C)$

18.  $(A \cup B) \cap (A \cup C)$

19.  $(B \cup C)' \cap A$

20.  $(A \cup B \cup C)'$

21. An activities director for a cruise ship has surveyed 240 passengers. Of the 240 passengers,

135 like swimming

150 like dancing

65 like games

80 like swimming and dancing

40 like swimming and games

25 like dancing and games

15 like all three activities

How many passengers:

- a. like exactly two of the three types of activities
- b. like only swimming
- c. like none of these activities

22. Draw a Venn Diagram and shade the region(s) that represent  $A \cup (B \cap C)$

23. Give an example of an empty set.

24. Give an example of a set with exactly 7 proper subsets.