

MTH 161

Section 2.2: Number of Subsets

Directions: Answer each of the following questions with one or more complete sentences. Your answer should include the question as part of the answer sentence. For example, if the question is “*What is your name?*” you might give the answer, “*My name is Jennifer Jones.*”

For this assignment, the *Universe* = the set of colors of the rainbow.

$$U = \{ \text{red, orange, yellow, green, blue, indigo, violet} \}$$

$$A = \{ \text{red, orange, yellow, green, blue} \}$$

$$B = \{ \text{green, blue, indigo, violet} \}$$

$$C = \{ \text{red, orange, yellow} \}$$

$$D = \{ \text{red, orange} \}$$

$$E = \{ \text{red} \}$$

$$F = \{ \}$$

1. What is the number of distinct proper subsets of set **F**?
2. What is the number of distinct proper subsets of set **E**? List them.
3. What is the number of distinct proper subsets of set **D**? List them.
4. What is the number of distinct proper subsets of set **C**? List them.
5. What is the number of distinct proper subsets of set **B**? List them.
6. What is the number of distinct proper subsets of set **A**? List them.
7. What is the number of distinct subsets of a finite set A, and what is the number of distinct proper subsets of a finite set A?
(*HINT: The answer is on page 54 in a yellow box. Be sure to state your answer with a complete sentence that includes the answer such as, “The number of distinct subsets of a finite set A is ____.”*)