2.2 Comparing Sets

M. Goodroe - Quantitative Skills and Reasoning

Objectives:

1. Determine when sets are equal
2. Distinguish between the ideas of "equal" and "equivalent" sets.
3. Explain the difference between subsets and proper subsets
4. Use Venn diagrams to illustrate set relationships.
5. Determine the number of subsets of a given set.

Key Terms:

Equal Sets
Equivalent Sets
One-to-One Corresspondence
Subset
Proper Subset
Venn Diagram

Name:_____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Decide whether the sets are equal.

1) {parsley, thyme, saffron, oregano} and {y : y is an herb}

2) {y : y was an American President in the year 1573} and ∅

Decide whether the statement is true or false.

3) ∅ ⊆ {4, 8, 12, 16, 20}

4) {12, 84, 145, 264} ⊆ {12, 24, 36, ..., 1080}

Decide whether the sets are equivalent.

5) {d: d is a month of the year} and {g : g is a state in the United States}

6) {x : x is a multiple of 10 between 1 and 100, inclusive} and {9, 18, 27, ..., 90}

List the subsets.

7) List all of the two element subsets of the set {a, b, c, d}.

8) List all of the three element subsets of the set {a, b, c, d, e}.

Use the following definitions to determine if the statement is true or false.

N = {x : x is a natural number}
I = {x : x is an integer}
R = {x : x is a real number}
W = {x : x is a whole number}
Q = {x : x is a rational number}

9) W is a subset of W, I, Q, and R.

10) W is a subset of N, W, I, Q, and R.

11) I is a proper subset of Q and R.

12) I is a proper subset of N, W, Q, and R.

Find the number of subsets of the set.

13) {14, 15, 16}

14) {math, English, history, science, art}

15) {x | x is a day of the week}