

DISCRETE MATHEMATICS -411 ASSIGNMENT NO.8

CHAPTER 2

EXERCISE 2.3

1. Why is f not a function from \mathbf{R} to \mathbf{R} if

a) $f(x) = 1/x$?

b) $f(x) = \sqrt{x}$?

2. Determine whether f is a function from \mathbf{Z} to \mathbf{R} if

c) $f(n) = 1/(n^2 - 4)$.

31. Let $f(x) = \lfloor x^2/3 \rfloor$. Find $f(S)$ if

c) $S = \{1, 5, 7, 11\}$.

d) $S = \{2, 6, 10, 14\}$.

65. Draw the graph of the function $f(x) = \lfloor x \rfloor + \lfloor x/2 \rfloor$ from \mathbf{R} to \mathbf{R} .

EXERCISE 2.4

1. Find these terms of the sequence $\{a_n\}$,

where $a_n = 2 \cdot (-3)^n + 5^n$.

c) a_4 d) a_5

5. List the first 10 terms of each of these sequences.

a) the sequence that begins with 2 and in which each successive term is 3 more than the preceding term.

b) the sequence that lists each positive integer three times, in increasing order

c) the sequence that lists the odd positive integers in increasing order, listing each odd integer twice.

25. For each of these lists of integers, provide a simple formula or rule that generates the terms of an integer sequence that begins with the given list. Assuming that your formula or rule is correct, determine the next three terms of the sequence.

a) 1, 0, 1, 1, 0, 0, 1, 1, 1, 0, 0, 0, 1, ...

b) 1, 2, 2, 3, 4, 4, 5, 6, 6, 7, 8, 8, ...

c) 1, 0, 2, 0, 4, 0, 8, 0, 16, 0, ...

d) 3, 6, 12, 24, 48, 96, 192, ...

29. What are the values of these sums?

a) $\sum_{k=1}^5 (k+1)$

b) $\sum_{j=0}^4 (-2)^j$

c) $\sum_{i=1}^{10} 3$

d) $\sum_{j=0}^8 (2^{j+1} - 2^j)$