



UTM
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INSPIRING CREATIVE AND INNOVATIVE MINDS

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Chapter 2

(Part 2)

Functions



Exercise 1

Determine which of the relations f are functions from the set X to the set Y .

a) $X = \{-2, -1, 0, 1, 2\}$, $Y = \{-3, 4, 5\}$ and

$$f = \{(-2, -3), (-1, -3), (0, 4), (1, 5), (2, -3)\}$$

b) $X = \{-2, -1, 0, 1, 2\}$, $Y = \{-3, 4, 5\}$ and

$$f = \{(-2, -3), (1, 4), (2, 5)\}$$

c) $X = Y = \{-3, -1, 0, 2\}$ and

$$f = \{(-3, -1), (-3, 0), (-1, 2), (0, 2), (2, -1)\}$$

In case any of these relations are functions, determine if they are one-to-one, onto Y , and/or bijection.

Exercise 2

■ Find each inverse function.

a) $f(x) = 4x + 2, x \in R$

b) $f(x) = 3 + (1/x), x \in R$



Exercise 3

- Let f dan g be functions from the positive integers to the positive integers defined by the equations,

$$f(n) = n^2, \quad g(n) = 2^n$$

- Find the compositions

a) $f \circ f$

b) $g \circ g$

c) $f \circ g$

d) $g \circ f$