

Representations of Relations

Relation: a set of ordered pairs

Domain: the first set of all elements in an ordered pair

Range: the second set of all elements in an ordered pair

Representations of Relations:

1. Ordered Pairs

2. Table

3. Graph

4. Rule

5. Mapping Diagram

Kinds of Relation:

1. One-to-one Correspondence: Each element in the first set is paired with exactly one element in the second set.

2. Many-to-one Correspondence: Many elements in the first set are paired with the same elements in the second set.

3. One-to-many Correspondence: One element of the first set is paired with different elements in the second set.

Practice Exercises

A. For each situation, determine the relation and express it using the five representations.

1. Every weekend, James pays an amount of ₱50.00 per hour for renting a basketball court with his best friends. They enjoy playing basketball and spent 5 hours, especially if they are in a good mood.

2. During weekends, Christian plays online games. He spends 5 hours a day in the computer rentals amounting to ₱20.00 per hour.

B. For each relation, determine the domain, range, and kind of pairing, then graph the relation.

1.  $\{(1, 1), (2, 2), (3, 3), (4, 4)\}$

2.  $\{(4, 3), (-2, 4), (5, -1), (2, 6)\}$

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

Problem Set

A. For each situation, determine the relation and express it using the five representations.

1. Suppose you want to call your mother by phone for five minutes. The charge of a pay phone call is ₱5 for the first three minutes and an additional charge of ₱2 for every additional minute or a fraction of it.

2. Suppose the bicycle rental at the Rizal Park is worth ₱20 per hour. Your sister would like to rent a bicycle for four hours.

B. For each relation, determine the domain, range, and kind of pairing, then graph the relation.

1.  $\{(0, 2), (1, 3), (2, 4), (3, 5), (4,6)\}$

2.  $\{(0, 2), (0,4), (0, 6), (0, 8), (0, 10)\}$

3.  $\{(-5, -2), (-2, -2), (1, 0), (4, 2), (7, 2)\}$

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