continuous or discrete KEY

Functions/Relations Day 2- with Domain and Range Name

Class Notes-Activity

- A relation between two variables, x and y, is a set of ordered pairs (x , y). A set is written in brackets like these { }. - set notation

  Example: $\{(-2,-4),(-1,-2),(0,0),(2,4),(6,12)\}$ - Discrete function

- The Domain is the set of **x-values** from the ordered pairs. *Fill in using the example*

  D: { -2, -1, 0, 2, 6 }

- The Range is the set of **y-values** from the ordered pairs. *Fill in using the example*

  R: { -4, -2, 0, 4, 12 }

Function is a relation in which each element of the domain is paired with exactly one element of the range. (Using ordered pairs: **there cannot be two or more "x" values the same.)**

Examples:

{(**2**,2), (**3**,5), (**6**,3), (**7**,2)} **Function**

{(2,2), (**3**,5), (**3**,3), (7,2)} **Not a function**

must order L → G

A **continuous function** is one that you can graph without lifting your pencil from the paper. * For Domain & Range * must use < (open endpoint) ≤ (closed circle)

Data and their graphs that involve a count, such as number of people, are called **discrete**. A discrete graph is not continuous and is drawn by lifting the pencil from the paper.

* For Domain & Range
* must use set notation { }

1. Complete the following for the these ordered pairs: {(0, -1), (0, 1), (2, 2), (3,4), (4,0)}

no repeated values

a. Identify the Domain and Range

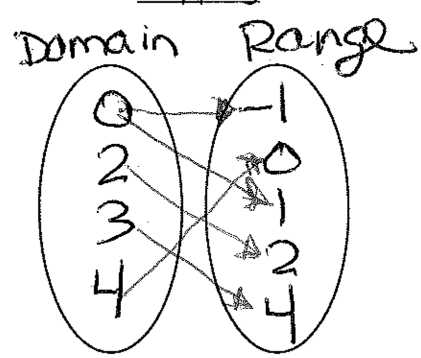
D: {0, 2, 3, 4}

R: {-1, 0, 1, 2, 4}

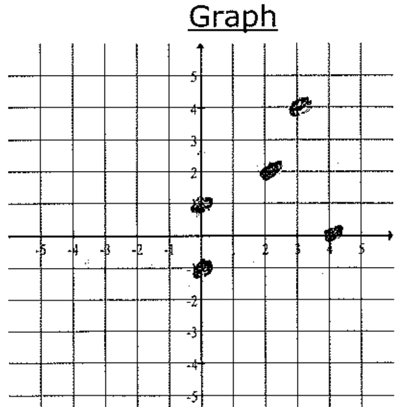
Table

X input	Y output
0	-1
0	1
2	2
3	4
4	0

Mapping



Graph



* Discrete

b. Is this a function? Explain.

Non-function
The x-value of zero is repeated

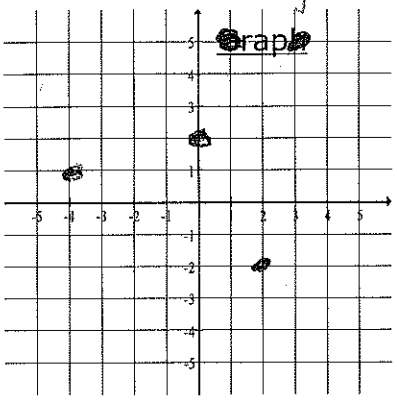
2. Complete the following for these ordered pairs: {(-4, 1), (0, 2), (1, 5), (2,-2), (3,5)}

a. Identify the Domain and Range

D: {-4, 0, 1, 2, 3}

R: {-2, 1, 2, 5}

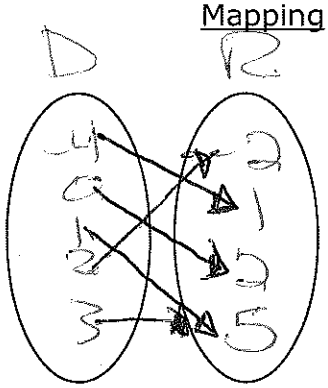
Graph



Table

X input	Y output
-4	1
0	2
1	5
2	-2
3	5

Mapping

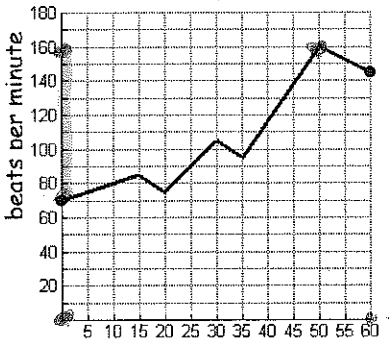


b. Is this a function? Explain.

Function
No repeating x-values

3. State the domain and range for each situation.

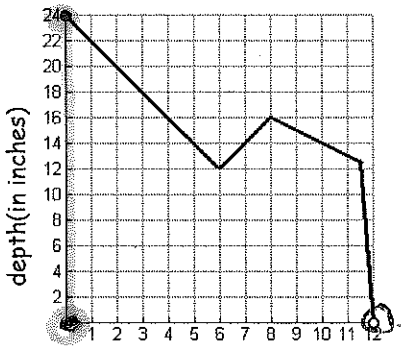
A. Heartrate: Continuous



Domain $0 \leq x \leq 60$

Range $70 < y \leq 160$

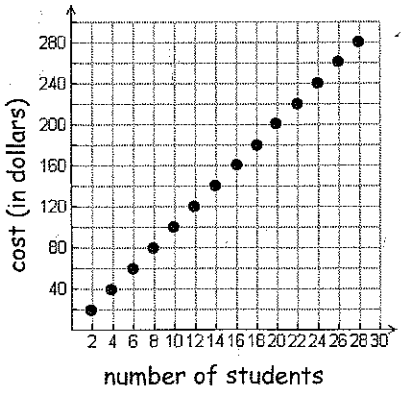
B. Water level in a wading pool



Domain $0 \leq x < 12$

Range $0 < y \leq 24$

4. Mrs. Grueber's Algebra I class is ordering T-shirts that cost $10 each. What is the domain and range for this situation?



Domain {2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28}

Range {20, 40, 60, 80, 100, 120, 140, 160, 180, 200, 220, 240, 260, 280}

How does this graph differ from the graphs in number 3?

This is discrete while those are both continuous