Name _____ Class _____ Date _____

Reteaching 2-1

Relations and Functions

OBJECTIVE: Determining whether a relation is a function

MATERIALS: Number cube

- A **relation** is a set of ordered pairs.
- The **domain** is the set of the first numbers in each pair, or the x-values.
- The **range** is the set of the second numbers in each pair, or the y-values.
- A relation is a **function** if each input value x corresponds to exactly one output value y. In a set of ordered pairs for a function, an x-value cannot be repeated with two or more different y-values.

Example

Roll a number cube six times to get the x-values of six ordered pairs in a relation. Roll it six more times to get the y-values of the ordered pairs. Decide whether the relation is a function. Find the domain and the range of the relation.

$\{(6, 1), (2, 1), (5, 4), (2, 2), (1, 4), (4, 2)\}$ ← **Write the ordered pairs.**

$\{(6, 1), (\textcircled{2}, 1), (5, 4), (\textcircled{2}, 2), (1, 4), (4, 2)\}$ ← **Circle any x-values that repeat to determine whether the relation is a function.**

The x-value 2 is repeated with two different y-values so the relation is not a function.

The domain is the set of first numbers in each pair: $\{6, 2, 5, 1, 4\}$.
The range is the set of second numbers in each pair: $\{1, 4, 2\}$.

Exercises

Roll a number cube to find the indicated number of ordered pairs. Determine whether each set of ordered pairs is a function. Find the domain and range of each relation.

1. 5 ordered pairs **2.** 4 ordered pairs **3.** 6 ordered pairs **4.** 8 ordered pairs

Determine whether each relation is a function. Explain your answer. Find the domain and range of each relation.

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

6. $\{(0, -1), (1, 2), (-1, -1), (-2, 5), (2, 9)\}$

7. $\{(A, B), (C, D), (E, F), (G, H)\}$

8. $\{(I, M), (N, P), (I, T), (I, P)\}$

9. $\{(0, 0)\}$

10. $\left\{\left(\frac{1}{2}, 3\right), (0.5, 4), (2, 1)\right\}$