## Study Guide

## Domain\_Range 02/29/2012

## Domain/Range

A <u>relation</u> is a collection of (x, y) coordinate points. For example:

 $r = \{(0, 3), (1, 6), (4, 8), (7, 0)\}$ 

The <u>domain</u> of the relation is the set of x-values in the collection of coordinate points that make up the relation, and the <u>range</u> is the set of y-values. The domain and range of a relation are written as sets of numbers in ascending order within brackets and each number is only written once. For example:

```
r = \{(0, 3), (1, 6), (4, 8), (7, 0)\}
domain: {0, 1, 4, 7}
```

range: {0, 3, 6, 8} This skill focuses on giving students practice determining the domain and range of relations.

**Example 1:** Find the domain of the following relation *r*.

 $r=\{(5,-6),\,(3,\,5),\,(8,-1),\,(2,\,7)\}$ 

Solution: The domain is the set of all x-values of the coordinate points that make up the relation.

Answer: {2, 3, 5, 8}

**Example 2:** Find the range of the following relation *r*.

 $r=\bigl\{(12,\,-2),\,(3,\,-4),\,(9,\,-1),\,(6,\,8),\,(0,\,-4)\bigr\}$ 

Solution: The range is the set of all *y*-values of the coordinate points that make up the relation. NOTE: Although the - 4 is used as a *y*-value twice, it only needs to be written once in the range.

## Answer: {-4, -2, -1, 8}

An activity that can help reinforce the concept of domain and range is to show students a collection of coordinate points and ask them to name the member of the domain of each coordinate point (*x*-value) and the member of the range of each coordinate point (*y*-value).