Algebra 1 4.6 Notes

## Formalizing Relations and Functions

* **Relation**: A pairing of numbers in one set.

* **Domain**: The set of all possible x-values

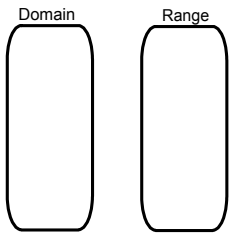
* **Range**: The set of all possible y-values

* **Function**: A relationship that pairs each input value with exactly one output value.

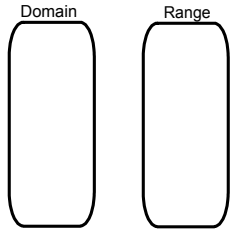
* **Function Notation**: *f(x)*=... where *x* is the input and *f(x)* is the output (*y* value)

**Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.**

1. {(3,6), (5,7), (7,7), (8,9)}



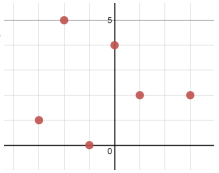

2. {(3,6), (4,8), (3,7), (5,5)}




***The Vertical Line Test**: if a vertical line intersects a graphed relation more than once, the relation is not a function. (1 input leads to >1 outputs)*

**Use the vertical line test to determine whether the relation is a function.**

3.

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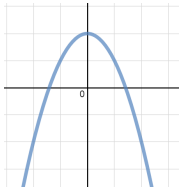
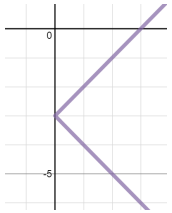



5.




**Find the range for each function with the given domain.**

6. $f(x)$ = -3x +2; {-2, -1, 0, 1, 2}

7. $f(x)$ = $x^3$; {-4, -2, 0, 2, 4}

**Find a reasonable domain and range for each function. Then graph the function.**

8. A high school is having a pancake breakfast fundraiser. They have 7 packages of pancake mix that each feed 20 people. The function $N(p) = 20p$ represents the number of people $N(p)$ that $p$ packages of packages mix feeds.