Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Table #: \_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_

**6.1A NOTES – Relations and Functions**

*Objective: define relations and functions; determine whether relations are functions; describe patterns in mapping diagrams. CC.SS.8.F.1*

*HW: textbook- 6.1A pg 246\_#3-11 odd, 12-17 all, 19-22 all. SCROLL DOWN WHEN DOING BIM. ONLY ONE CHECK.*



* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the set of x values. It can also be called inputs or independent variable.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the set of y values. It can also be called outputs or dependent variable.
* A relation may be viewed as ordered pairs, mapping diagram, table, graph, equation, or written in sentences.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Mapping Diagram** | **Ordered Pairs** | **Table**

|  |  |
| --- | --- |
| **X** | **Y** |
|  |  |
|  |  |
|  |  |
|  |  |

 |
| **Graph**Image result for graph | **Equation** | **Written sentence** |

**EXAMPLE 1:** Express the relation {(-4, -1), (-1, 3), (1, -4), (2, -3), (4, 3)} as a table, a graph, and a mapping. Then, state the domain and range of the relation.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
| **X** | **Y** |
|  |  |
|  |  |
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|  |  |

DOMAIN: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_RANGE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Image result for graph |  |
| Determine when a relation is a function: *A relation that pairs each input with EXACTLY ONE output is a function.* * Focus on the x-coordinates, when given a relation. If the set of ordered pairs have different x-coordinates, it is a function.
* If the set of ordered pairs have same x-coordinates, it is not a function.
* Y-coordinates have no effect of determining functions.

**EXAMPLE 2:** List the ordered pairs shown in the mapping diagram.  |

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| --- | --- | --- | --- |
| **EXAMPLE 3:** Determining if a Relation is a Function Using Ordered Pairs.

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| --- | --- | --- |
| 1. {(7, 4), (6, 3), (5, 2)}

Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | 1. {(15, 0), (15, -2)}

Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | 1. {(0,1), (2, 1), (0, 3)}

Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: |

 |
| **EXAMPLE 4:** Determining if a Relation is a Function Using Tables.

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| --- | --- | --- |
| A)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | B)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | C)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: |

 |
| **EXAMPLE 5:** Determining if a Relation is a Function Using Graphs.

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| --- | --- | --- |
| A)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | B)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | C)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: |

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| **EXAMPLE 6:** Determining if a Relation is a Function Using Mapping Diagrams.

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| --- | --- | --- |
| A)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | B)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: | C)Function? \_\_\_\_\_\_\_\_\_\_\_\_Explain: |

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