## Concept 21: Identifying Functions

START DATE:
(materials are available)
Assessment Date:
(date of $1^{\text {st }}$ assessment on this concept)

## DUE DATE:

(To stay on pace: should be done by now)
DEADLINE:
(on THE LIST i f note completed)

Pre-Quiz Score = $\qquad$ /5

## Score 5 = Level 4

Score 3,4 = Level 3
Score 0,1,2 = Level 2

| Level 4 Example | Level 3 Example | Level 2 Example |
| :---: | :---: | :---: |
| Identify the domain and range. | Is the following relation a function? | Is the following relation a function? |
| Is the following relation a function? | $\square \sim^{\wedge} \sim^{\wedge}$ |  |
| - ${ }^{\text {a }}$ | - | - |
|  |  |  |
|  | $\longrightarrow$ | $\xrightarrow{\longrightarrow}$ |
|  |  |  |
| - ${ }_{-1}$ |  |  |
| - - - |  | - |
| $\square{ }_{5}^{5} \downarrow{ }^{-4}$ |  |  |

## (C) Level 2

1. INTRODUCTION: Take Notes \& Basic Practice

| Mr. Sieling's Video | Alternate Video | From Other Source |
| :---: | :---: | :---: |
| Videos are on | Videos are on |  |
| Mr. Sieling's Website | Mr. Sieling's Website |  |

2. PRACTICE ACTIVITIES: (Complete at least 2)

| IXL Practice | Worksheet |
| :---: | :---: |
| Q4 (Alg1) | Level 2: Identifying Functions |
| At least to 95 |  |
| Score $=$ |  |


| Activity |
| :---: |
| Write a movie review of the YouTube Video <br> "meat-a-morphsis" and include why it <br> represents a function. (link on my webpage) |

## Create

An explanation of what a function is. Provide at least 2 examples of a function Provide 1 example of a non-function
3. QUIZ (Level 2)

Schoology Quiz: Level 2 - Identifying Functions

## Level 2

Quiz Score:

## 3. REMEDIATION

## Correct Mistakes on Quiz and Do Another Practice Activity

(B) Level 3

1. INTRODUCTION: Take Notes \& Basic Practice

| Mr. Sieling's Video | Alternate Video | From Other Source |
| :---: | :---: | :---: |
| Videos are on | Videos are on |  |
| Mr. Sieling's Website | Mr. Sieling's Website |  |

2. PRACTICE ACTIVITIES: (Complete at least 2)

| IXL Practice | Worksheet |
| :---: | :---: |
| Q5 (Alg1) <br> All the way to 100 <br> Score $=$ | Level 3: Identifying Functions |
| Activity | Create |
| Function Sort Activity | An explanation of how to use the vertical <br> line test, include an example of a function, <br> and a non-example of a function |

3. QUIZ (Level 3)

Schoology Quiz: Level 3 - Identifying Functions
4. REMEDIATION

Quiz Score:

Correct Mistakes on Quiz and Do Another Practice Activity

Mr. Sieling's Signature $\qquad$

## (A) Level 4

1. INTRODUCTION: Take Notes \& Basic Practice

| Mr. Sieling's Video | Alternate Video | From Other Source |
| :---: | :---: | :---: |
| Videos are on | Videos are on |  |
| Mr. Sieling's Website | Mr. Sieling's Website |  |

2. PRACTICE ACTIVITIES: (Complete at least 2)

| IXL Practice | Worksheet |
| :---: | :---: |
| Q2, Q3 (Alg1) <br> At least to 90 <br> Score | Level 4: Identifying Functions |
| Activity | Create |
|  <br> Dependent Variable <br> Sorting Activity | An explanation of domain and range |

3. QUIZ (Level 2)

Schoology Quiz: Level 4 - Identifying Functions

## Level 4

Quiz Score:

Correct Mistakes on Quiz and Do Another Practice Activity

Notes Level 2:

## Goals:

Define a function
Concept \# $\qquad$
Identify a function from a table, list of coordinate points, or a diamgram
Notes:
Big Ideas
Examples/Details

## Level 2 Practice:

For each diagram, list the domain and range, and state whether or not it is a function.
DOMAIN: DOMAIN:

$(3,-2),(-2,3),(3,1),(-2,0)$
DOMAIN: RANGE: FUNCTION


DOMAIN: RANGE:
FUNCTION
Yes/No


DOMAIN: RANGE: FUNCTION Yes/No

## Worksheet Level 2:

## Goals:

Define a function $\qquad$
Identify a function from a table, list of coordinate points, or a diagram

## Practice \#1

A. Which tables below represent functions. Explain your answers.

| Table 1 |  | Table 2 |  | Table 3 |  | Table 4 |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Input $x$ | Output $y$ | Input <br> $x$ | Output $y$ | Input $x$ | Output $y$ | Input $x$ | Output $y$ |
| -2 | -3 | 4 | -2 | -2 | 0.44 | -2 | -3 |
| -1 | -1 | 1 | -1 | -1 | 0.67 | -1 | -5 |
| 0 | 1 | 0 | 0 | 0 | 1 | 1 | -1 |
| 1 | 3 | 1 | 1 | 1 | 1.5 | 1 | -3 |
| 2 | 5 | 4 | 2 | 2 | 2.25 | 2 | $-10$ |
| 3 | 7 | 9 | 3 | 3 | 3.37 | 3 | -2 |
| 4 | 9 | 16 | 4 | 4 | 5.06 | 3 | -8 |

Table 1: $\qquad$

Table 2: $\qquad$
Table 3: $\qquad$
Table 4: $\qquad$

## Practice \#2

Functions:
DOMAIN: the input of a function RANGE: the output of a function

For a relationship to be a function there must be $\qquad$ output for each input.

For each table below:
i. does the table represent a function?
ii. what is the domain?
iii. what is the range?

Table A

| Input | Output |
| :---: | :---: |
| 1 | 2 |
| 2 | 4 |
| 3 | 6 |

Table B

| Input | 1 | 0 | 1 |
| :--- | :--- | :--- | :--- |
| Output | 1 | 2 | 5 |

Table C

| Input | 1 | 2 | 3 | 4 | 5 | 6 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Output | 0 | 0 | 0 | 0 | 0 | 0 |

Practice \#3
Tell whether each table represents a function.
a.

| Input | Output |
| :---: | :---: |
| 1 | 4 |
| 2 | 3 |
| 3 | 4 |
| 4 | 3 |

b.

| Input | Output |
| :--- | :--- |
| red | rose |
| blue | sky |
| yellow | sun |
| blue | ocean |

c.

| Input | Output |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |

## Practice \#4

Tell whether each table represents a function.
a.

| Input | Output |
| :---: | :---: |
| 1 | 4 |
| 2 | 3 |
| 3 | 4 |
| 4 | 3 |

b.

| Input | Output |
| :--- | :--- |
| red | rose |
| blue | sky |
| yellow | sun |
| blue | ocean |

c.

| Input | Output |
| :---: | :---: |
| A | a |
| B | b |
| C | c |
| D | d |

## Practice \#5

This table converts standard time to military time.

| Standard time (A.M.) | $1: 00$ | $2: 00$ | $3: 00$ | $4: 00$ | $5: 00$ | $6: 00$ | $7: 00$ | $8: 00$ | $9: 00$ | $10: 00$ | $11: 00$ | $12: 00$ |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Military time | 0100 | 0200 | 0300 | 0400 | 0500 | 0600 | 0700 | 0800 | 0900 | 1000 | 1100 | 1200 |
| Standard time (P.M.) | $1: 00$ | $2: 00$ | $3: 00$ | $4: 00$ | $5: 00$ | $6: 00$ | $7: 00$ | $8: 00$ | $9: 00$ | $10: 00$ | $11: 00$ | $12: 00$ |
| Military time | 1300 | 1400 | 1500 | 1600 | 1700 | 1800 | 1900 | 2000 | 2100 | 2200 | 2300 | 2400 |

a. Does this represent a function?
b. Describe the domain
c. Describe the range.

Notes Level 3:

Goals:
Use the Vertical Line Test to Identify functions from a graph
$\qquad$ Identify functions from tables and diagrams.

## Notes:

Big Ideas

## Vertical Line Test:

Example 1:


Passes the Vertical Line Test It is a FUNCTION!!!

Example 2:


Passes the Veltical Line Test It is a FUNCTION!!!


Does not pass the Vertical Line Test It is NOT a function

Level 3 Practice:
For each scenario, tell whether the relation represents a function.
\(\left.$$
\begin{array}{l|l|l}\text { Input } \longrightarrow \text { Output } & \begin{array}{c}\text { FUNCTION } \\
\text { (Yes/No) }\end{array}
$$ \& Explain <br>
City \longrightarrow Zip Code \& <br>

Last Name \longrightarrow First Name \& \longrightarrow Birthday \& \longrightarrow\end{array}\right]\)|  |
| :--- |
| Person $\longrightarrow$ Capital |

## Practice \#2

State whether each graph represents a function or not.


## Worksheet Level 3:

Goals:
Use the Vertical Line Test to Identify functions from a graph
$\qquad$ Identify functions from tables and diagrams.

## Practice \#1

State whether each graph represents a function or not.


$$
(x-5)^{2}+(y-3)^{2}=4
$$

Function?

$y=2 x-3$
Function?


$$
x=-(y-2)^{2}+1
$$

Function?


$$
y=-|x-3|+2
$$

Function?

Find whether each graph represents a function.

b.

c.

d.


f.


Explain how you know if a graph is a function or not:

## What Did the Baby Porcupine Say When It Backed Into a Cactus?

Determine which of the relations below are functions. Find the number of each relation that is a function at the bottom of the page and cross out the letter below it. When you finish, the answer to the title question will remain.
(1) $\{(-2,7),(-1,5),(0,3),(1,1),(2,1)\}$

(2) $\{(-7,20),(3,5),(0,5),(-2,0),(6,-4),(-6,-9),(4,4)\}$
(3) $\{(4,8),(-3,-2),(9,6),(2,-1),(-4,-5),(2,7),(-8,0)\}$
(4)

| $x$ | $y$ |
| :---: | :---: |
| 0 | -19 |
| 1 | -12 |
| 2 | -4 |
| 3 | 3 |
| 4 | 13 |
| 5 | 27 |


(5)

| $x$ | $y$ |
| :---: | :---: |
| -5 | 8 |
| -3 | 8 |
| -1 | -2 |
| 1 | -2 |
| 3 | 11 |
| 5 | 23 |

(6)

| $\mathbf{x}$ | $\boldsymbol{y}$ |
| :---: | :---: |
| -2 | -7 |
| -2 | 5 |
| 0 | -16 |
| 2 | 0 |
| 2 | 6 |


(8)


(12)



Function

## Card Sort Activity

1. Cut out the cards below.
2. Create a poster divided into 2 sections. FUNCTION \& NOT A FUNCTION
3. Paste each card into the appropriate section


Notes Level 4:

## Goals:

Identify functions from a graph, table, or diagram.
$\qquad$
Identify domain and range.
Identify independent variable and dependent variable.
Notes:
Big Ideas

Examples/Details

## Independent and Dependent Variables


$\qquad$ is always the independent variable.
$\qquad$ is always the dependent variable.

## Basic Practice:

Find the domain and range of the function represented by the graph.
4.

5.

6.


Identify the independent and dependent variables for each situation described below.

|  | Independent Variable | Dependent Variable |
| :--- | :--- | :--- |
| John measures the length and <br> width of each side of a rectangle. <br> He uses those values to calculate <br> the area. |  |  |
|  |  |  |
| $y=4 x+1$ |  |  |
| David measures how many inches <br> his tomato plant grows every <br> week. |  |  |

The graph of the function $\mathrm{y}=\mathrm{f}(\mathrm{x})$ below shows the temperature $y$ outside at different times $x$ over a 24 -hour period.

i. Find the following:

Independent Variable =

Dependent Variable $=$
ii. Describe the following:

Domain:

## Worksheet Level 4:

## Goals:

Identify functions from a graph, table, or diagram.
$\qquad$
Identify domain and range.
Identify independent variable and dependent variable.

## Practice \#1

For each table or graph below, determine if it is a function or not. Identify the DOMAIN \& RANGE.

| $x$ | $y$ |
| :---: | :---: |
| 1 | -3 |
| 6 | -2 |
| 9 | -1 |
| 1 | 3 |


| $x$ | $y$ |
| ---: | ---: |
| 0 | 2 |
| 3 | 1 |
| 3 | -1 |
| 5 | 3 |


| $x$ | $y$ |
| ---: | :---: |
| -4 | -4 |
| -1 | -4 |
| 0 | -4 |
| 3 | -4 |











## Identify the dependent and independent variable.

Lacrecia is filling water bottles for a bicycle race. The number of water bottles she prepares is calculated based on how many hours she expects to be on the course.
$w=$ the number of water bottles Lacrecia prepares
$h=$ the number of hours Lacrecia expects to be on the course
Which of the variables is independent and which is dependent?

Marissa makes a salad at a salad bar. The weight of the salad determines how much it will cost.
$w=$ the salad's weight
$c=$ the salad's cost
Which of the variables is independent and which is dependent?

Bibiana and Tabari work at a small film studio and are planning a screening of their first feature-length film. The number of seats they will need to set up in the screening room depends on the number of people who attend the screening.
$s=$ the number of seats Bibiana and Tabari will need to set up
$p=$ the number of people who attend the screening
Which of the variables is independent and which is dependent?

A performing arts theater is hosting the local high school musical. The number of tickets that can be sold depends on how many seats there are in the theater.
$t=$ the number of tickets that can be sold for the performance
$s=$ the number of seats in the theater
Which of the variables is independent and which is dependent?

The Webster dairy farm produces milk and other dairy products. The number of cows on the farm changes from month to month. The more cows there are on the farm, the more milk the farm is able to produce in a month.
$c=$ the number of cows on the farm
$m=$ the amount of milk produced by the farm in a month
Which of the variables is independent and which is dependent?

## Independent vs Dependent Variable Card Sort

1. Cut out each of the cards below.
2. Sort the cards into pairs that go together.

Example: The "amount of strawberries you pick" goes with "the number of jars you will be able to fill with jam"
3. Create a poster with two sections "Independent Variable" and "Dependent Variable"
4. Paste the cards in pairs across from each other in the correct section.

| the length of time you <br> will need to wait | the number of meals <br> you prepare |
| :---: | :---: |
| the amount of <br> strawberries you pick | the total amount of <br> candy you will hand out |
| the number of pictures <br> the photographer will <br> take | the number of jars you <br> will be able to fill with <br> jam |
| the number of orchestra <br> members who go on <br> tour | the number of songs <br> performed |
| the number of people <br> you will be able to serve | the number of hotel <br> rooms they will need to <br> reserve |


| the number of people in <br> line ahead of you | the number of <br> cucumbers you have |
| :---: | :---: |
| the number of students <br> attending the dance | the number of people <br> attending the potluck |
| the number of squares <br> Marshall cuts the pizza <br> into | the amount of money <br> they will be able to <br> raise |
| the number of pickles <br> you can make <br> the duration of the <br> concert |  |
| the number of cookies <br> they bake | the number of visitors <br> to your booth |

