Concept 22: Evaluating Functions

<table>
<tr>
<td>

START DATE:_____

(materials are available)

Assessment Date:_____

(date of 1st assessment on this concept)

</td>
<td>

DUE DATE:_____

(To stay on pace: should be done by now)

DEADLINE:_____

(on THE LIST if note completed)

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Pre-Quiz Score = _____/5

Score 5 = Level 4

Score 3,4 = Level 3

Score 0,1,2 = Level 2

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Level 4 Example	Level 3 Example	Level 2 Example
Evaluate the following function	**Evaluate the following function**	**Evaluate the following function**
$f(2n+3) = 5x - 8$	$f(7) = \left| 8x^2 - 5x + 3 \right|$	$f(-4) = 8x + 3$

(C) Level 2

1. **INTRODUCTION: Take Notes & Basic Practice**

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

2. **PRACTICE ACTIVITIES: (Complete at least 2)**

IXL Practice	Worksheet
Q6, Q11 (Alg1) At least to 80 Score = _____	Level 2: Evaluating Functions

Buzzmath	Create
Evaluating a Function	2 examples of evaluating a function

3. **QUIZ (Level 2)**

Schoology Quiz: Level 2 – Evaluating Functions

Level 2 Quiz Score:

3. **REMEDIATION**

Correct Mistakes on Quiz and Do Another Practice Activity

Mr. Sieling's Signature _____

(B) Level 3

1. **INTRODUCTION: Take Notes & Basic Practice**

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2. **PRACTICE ACTIVITIES: (Complete at least 2)**

IXL Practice	Worksheet
Q7 (Alg1) At least to 90 Score = _____	Level 3: Evaluating Fuctions
Buzzmath	**Create**
Evaluating a Function	2 examples of evaluating a function

3. **QUIZ (Level 3)**

      Schoology Quiz: Level 3 – Evaluating Functions

Level 3 Quiz Score:

4. **REMEDIATION**

      Correct Mistakes on Quiz and Do Another Practice Activity

      Mr. Sieling's Signature _____

(A) Level 4

1. **INTRODUCTION: Take Notes & Basic Practice**

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

2. **PRACTICE ACTIVITIES: (Complete at least 2)**

IXL Practice	Worksheet
Q8 (Alg1) At least to 80 Score = _____	Level 4: Evaluating Functions
Buzzmath	**Create**
Evaluating a Function	An example of evaluating functions with variables in the input

3. **QUIZ (Level 2)**

      Schoology Quiz: Level 4 – Evaluating Functions

Level 4 Quiz Score:

4. **REMEDIATION**

      Correct Mistakes on Quiz and Do Another Practice Activity

      Mr. Sieling's Signature _____

Notes Level 2:

Goals:

Evaluate a function

Notes:

Big Ideas	Examples/Details

Level 2 Practice:

Evaluate each function.

1) $f(x) = 4x + 2$; Find $f(8)$

2) $h(x) = 4x - 2$; Find $h(-9)$

3) $f(x) = 4x + 1$; Find $f(3)$

4) $g(x) = 3x - 5$; Find $g(-2)$

5) $f(x) = 3x - 5$; Find $f(2)$

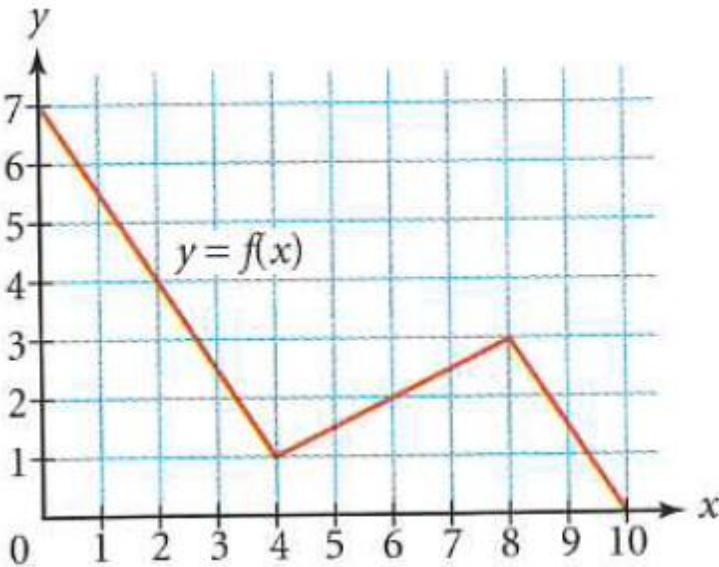6) $w(a) = a - 1$; Find $w(0)$

7) $w(n) = n - 1$; Find $w(-4)$

8) $w(n) = -2n - 1$; Find $w(3)$

9) $h(n) = 3n - 4$; Find $h(-6)$

10) $f(x) = 2x + 1$; Find $f(3)$

Practice #2

A Look at the graph below

In the graph above f(4) = 1.

Find the following values of the function.

f(6) =   f(2) =

f(0) =   f(5) =

For which values of x
is this statement true?
            f(x) = 1

Worksheet Level 2:

Goals:

Evaluate a function

Practice #1

1) $w(n) = n - 5$; Find $w(4)$

2) $g(x) = -|x|$; Find $g(-4)$

3) $p(x) = 4x - 2$; Find $p(2)$

4) $h(n) = 3|n + 2|$; Find $h(5)$

5) $h(x) = 3|2x|$; Find $h(6)$

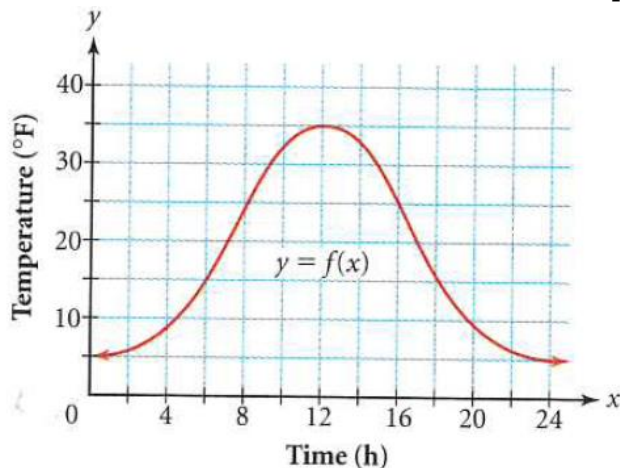6) $h(x) = |-2x - 3| - 3$; Find $h(5)$

7) $h(n) = 3n + 5$; Find $h(4)$

8) $k(a) = |a| + 1$; Find $k(-7)$

9) $k(x) = x + 5$; Find $k(5)$

10) $g(n) = |n| - 2$; Find $g(-9)$

Practice #2

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

i. Find the following:
Independent Variable =
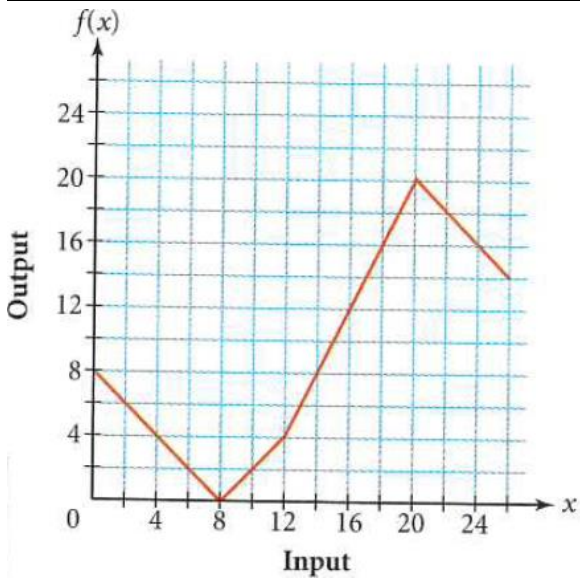
Dependent Variable =

ii. Describe the following:

Domain:

Range:

iii. Which of the following would find the temperature at 10 hours?

f(x) = 10   f(10)   f(h)   f(30)

iv. Which of the following would find the time when the temperature is 10 degrees?

f(x) = 10   f(10)   f(h)   f(30)

Practice #3

f(x) / Output vs Input

Describe the domain and range of this function.

Domain:

Range:

Find the following values:

f(18) =   f(5) =   f(17) =

Practice #4

Fill out the table below using the function above.

Notation	Value
$f(3)$	
$f(18)+f(3)$	
$f(5)\cdot f(4)$	
$f(15)\div f(6)$	
$f(20)-f(10)$	

Now use the following code to translate your answers from the table into the NAME of the mathematician who introduced the world to functions.

A = 1   B = 2   C = 3   D = 4   ...
W=23   X=24   Y=25   Z=26

Mathematician:

Practice #5

$$f(x)=3x+2 \qquad\qquad g(x)=x^2-1$$

i. Find the following values of each function.

$f(3)=$ $g(5)=$ $g(-3)=$

ii. Find the values of x that make each statement true.

$f(x)=17$ $f(x)=-19$ $g(x)=99$

(1st step) $3x+2=17$
(solve for x)

Notes Level 3:

Goals:

Evaluate a function that contains exponents

Notes:

Big Ideas	Examples/Details

Evaluate each function.

1) $p(x) = |3x| + 3$; Find $p(8)$

2) $h(a) = a^3 + 3a^2$; Find $h(-5)$

3) $p(x) = |x + 1|$; Find $p(4)$

4) $f(x) = 4^{-x-1} - 1$; Find $f(2)$

5) $w(t) = 4^t + 3$; Find $w(-2)$

6) $g(x) = 2x$; Find $g(6)$

7) $p(n) = n^2 - 4n$; Find $p(3)$

8) $f(n) = |3n| - 2$; Find $f(9)$

9) $g(x) = 3^{-x} + 3$; Find $g(1)$

10) $h(t) = 4t + 2$; Find $h(5)$

Worksheet Level 3:

Goals:

Evaluate a function that contains exponents and absolute value.

Practice #1

Evaluate each function.

1) $h(n) = 2\left|-3n\right| + 2$; Find $h(9)$

2) $g(t) = t^2 - 2$; Find $g(-2)$

3) $w(x) = \left|3x\right|$; Find $w(-6)$

4) $k(x) = 4^{2x-1} - 1$; Find $k(0)$

5) $k(a) = \left|-2a + 3\right| - 1$; Find $k(-1)$

6) $f(a) = -a^2 - 4$; Find $f(5)$

7) $w(x) = 5^{2x+1}$; Find $w(-2)$

8) $f(n) = 4n - 3$; Find $f(-9)$

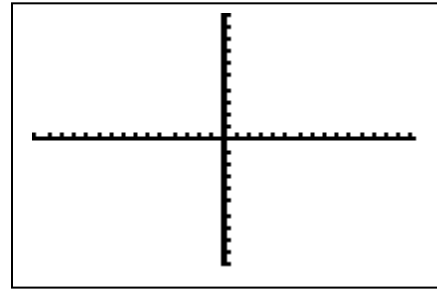9) $f(a) = 4a$; Find $f(5)$

10) $g(x) = x^2 - 2$; Find $g(-3)$

Absolute Value means the _____ from zero.

A

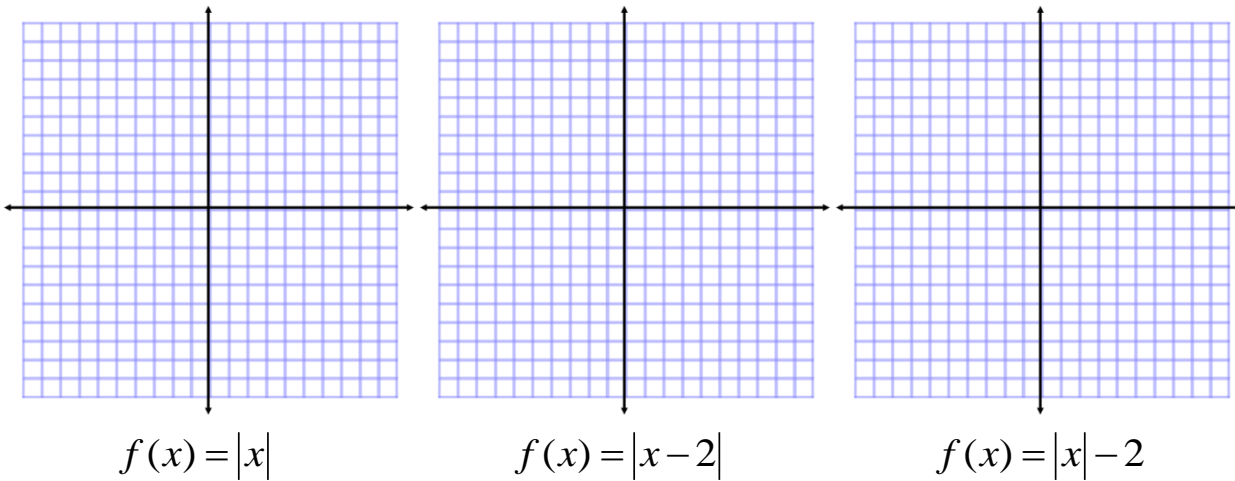What do you think the graph of this equation looks like?

Make your best sketch of the graph of y=$|x|$ looks like.

(this is just your best guess)

B.

Fill out each table and then sketch the graph.

	-10	-8	-6	-4	-2	0	2	4	6	8	10
$f(x)=|x|$											
$f(x)=|x-2|$											
$f(x)=|x|-2$											

$f(x)=|x|$ $f(x)=|x-2|$ $f(x)=|x|-2$

B   Find all the solutions to the equations below.
         Explain your answer.

$|x|=12$ $|x|+2=12$ $|x+2|=12$ $|x-2|=12$

Notes Level 4:

Goals:

Evaluate functions with variables in the input

Concept # _____

Notes:

Big Ideas	Examples/Details

Evaluate each function.

1) $w(x) = 3x + 1$; Find $w(-4 - x)$

2) $g(x) = -3x - 1$; Find $g(-3x)$

3) $h(x) = -3x + 4$; Find $h(x - 3)$

4) $k(a) = 2a - 5$; Find $k(4a)$

5) $g(x) = x + 4$; Find $g(2x)$

6) $g(x) = -x + 4$; Find $g(x - 2)$

7) $p(n) = n + 3$; Find $p(-n)$

8) $w(n) = n - 5$; Find $w(n - 4)$

9) $p(x) = 4x + 2$; Find $p(2 + x)$

10) $f(x) = 3x$; Find $f(3x)$

Worksheet Level 4:

Goals:

Evaluate a composite function

Practice #1

Evaluate each function.

1) $p(a) = -4a - 2$; Find $p(2a)$

2) $f(x) = 2x - 4$; Find $f(x + 3)$

3) $h(n) = 2n - 4$; Find $h(1 + n)$

4) $f(x) = 4x - 5$; Find $f(2 + x)$

5) $g(x) = 3x - 2$; Find $g(2x)$

6) $h(n) = n + 1$; Find $h(n + 2)$

7) $f(x) = 4x + 4$; Find $f(3x)$

8) $f(x) = -x - 1$; Find $f(x^2)$

9) $w(n) = 4n - 3$; Find $w(n^2)$

10) $f(t) = 2t - 3$; Find $f(t^2)$

Practice #2

Perform the indicated operation.

1) $g(x) = -4x - 1$
$h(x) = x^2 - 1$
Find $g(-1) \cdot h(-1)$

2) $g(t) = 2t - 5$
$h(t) = -3t^2 - 1 - t$
Find $(g - h)(-4)$

3) $f(n) = 2n - 4$
$g(n) = 3n - 3$
Find $(f - g)(-1)$

4) $h(t) = t + 5$
$g(t) = 4t + 5$
Find $h(g(-8))$

5) $g(n) = n + 4$
$h(n) = n^2 - 3$
Find $(g + h)(3)$

6) $g(n) = n^3 - 4$
$h(n) = 3n + 1$
Find $(g + h)(-3)$

7) $f(a) = a^2 + 1$
$g(a) = -a - 4$
Find $(f - g)(5)$

8) $g(a) = a - 3$
$h(a) = a^2 - 3a$
Find $g(h(-9))$

9) $g(n) = 4n + 3$
$h(n) = n^3 - 3n^2$
Find $(g + h)(-4)$

10) $f(x) = x - 2$
$g(x) = 4x + 2$
Find $(f - g)(6)$