

Algebra Lesson 3.3

Day 1 : Function Notation.

Linear



Remember : Table of Values...

$$y = 2x + 3$$

x	0	1	2	3
y	3	5	7	9

This can be
Expressed as a function
in Function Notation...

Plug the values in for x , see what you get for y .

$$y = 2(0) + 3 = 3$$

$$y = 2(1) + 3 = 5$$

$$y = 2(2) + 3 = 7$$

$$y = 2(3) + 3 = 9$$

You can name your
Equation $y = 2x + 3$ as
some letter. We will use
 f .

Read as f of x .

$$f(x)$$

$f(x)$ replaces the y in the
equation.

$$f(x) = 2x + 3$$

↑
Function Notation

Table in Function
Notation.

x	0	1	2	3
$f(x)$	3	5	7	9

3.3 Function Notation Day 1

"Evaluate f at 1" : Evaluate $f(1)$

Given $f(x) = x^2 - 6x + 4$

Idea: you swap x out for 1 (in this case) and simplify.

$$f(1) = (1)^2 - 6(1) + 4 \quad \leftarrow \text{simplify or "solve"}$$

$$= 1 - 6 + 4$$

$$= -5 + 4$$

$$= -1 \quad \leftarrow \text{Answer}$$

3.3 Function Notation Day 1

Ex: given $g(x) = -x^2 - 1$

Evaluate at $x = -4$ ← Another way to say Evaluate g at -4

so swap out x , swap in (-4) of $g(-4)$...

$$\begin{aligned} g(-4) &= -(-4)^2 - 1 \\ &= -16 - 1 \\ &= -17 \end{aligned}$$

Interpreting Function Notation.

Let $f(t)$ be the outside temperature t hours after 10 AM. Explain the meaning of each statement.

so... t is time after 10am.

$f(0) = 75$ ← The answer is the temperature after t hours passed.

↑ 0 hours after 10 AM the temp was 75°

$f(3) = n$ — so At 10 AM the temp was 75° —

↑ 3 hours after 10 AM, so 1 pm, the temp was n°

$$f(1) > f(8)$$

The temp at 11 AM is greater than the temp at 6 pm.

→ 1 hour after 10 is 11.

→ 8 hours after 10 is 6 pm

3.3 Function Notation Day 1

"Find the value of x that satisfies the function value"

$f(x)$ or $f(x)$
Function value is just the y value. The value you get after plugging in some x.

Ex: $f(x) = 3x$; find x for $f(x) = 33$

$x = 11$ ← since when you plug in 11 to $f(x)$ you get $3(11) = 33$

Ex: $f(x) = x - 15$; find x when $f(x) = 30$

Another way to do this is to substitute $f(x)$ for 30 in

" $f(x) = x - 15$ " and solve... $30 = x - 15$
 $+15$ $+15$ $x = 45$

Ex: $f(x) = -3x + 4$; find x when $f(x) = 22$

so... $22 = -3x + 4$

-4 -4

$$\frac{18}{-3} = \frac{-3x}{-3}$$

$$x = -6$$

3.3 Function Notation Day 1

3.3 Day 1 Homework:

Pg 127 6-8, 11 part A, b, d,
13-15