Algebra II Notes 9/6-7/18

Function Notation and Function Addition

Warm-up:

Jorge invests $75 in supplies for his dog washing service. He charges $15 to wash a dog.

1. Write an equation to represent the relationship between Jorge’s profit, *y*, and the number of dogs he washes, *x*.
2. Jorge uses tap water to wash dogs at his business. Tap water costs $0.004 per gallon in Jorge’s town, and Jorge uses 6 gallons for each dog he washes. Write an equation to represent the relationship between Jorge’s water bill and the number of dogs he washes.
3. Update your equation for Jorge’s profit, taking into account his costs for water.

Discuss:

1. What was tricky about the warm-up?
2. What variable did your group choose to represent Jorge’s costs for water? Why?

A different way of writing functions: **function notation**

In the equation you wrote for the first part of the warm up, Jorge’s profit was a **function** of the number of dogs he washed.

1. What does this mean?

In function notation, we write functions **explicitly** in terms of their dependent variables.

1. What variable would you like to use for “function?”

*Ms. Burchfield will re-write the answer to (a) in function notation.*

1. What variable would you like to use for the function in part (b)?

*Always remember to define your variables!*

Adding and subtracting functions:

1. What did your group do with parts (a) and (b) to answer part (c) of the warm-up?
2. What is a good way of writing what you did in formal function notation?
3. Try the following problems:



7) Given this graph of the function f(x):

f(x)

**y**

**x**

**5**

**5**

**-5**

-**5**

Find:

**a.** f(–4) **b.** f(0) **c.**  x when f(x) = -2 **d.** x when f(x) = 0

Homework on Function Notation and Addition of Functions (complete in notebook!)

|  |  |
| --- | --- |
| $$f\left(x\right)=2x-3$$ | $$y=x^{3}$$ |
| $$g\left(x\right)=x^{2}$$ | $$y=x^{2}$$ |
| $$f\left(z\right)=\frac{z}{2}+\frac{7}{2}$$ | $$y=2x-3$$ |
| $$P\left(x\right)=\frac{x}{2}+\frac{7}{2}$$ | $$y=2\sqrt{x}-x$$ |
| $$f\left(x\right)=2\sqrt{x}-x$$ | $$y=\frac{x}{2}+\frac{7}{2}$$ |



1. Swine flu is attacking Porkopolis. The function below determines how many people have swine where *t* = time in days and *S* = the number of people in thousands.



* 1. Find *S*(4).
	2. What does *S*(4) mean?
	3. Find t when *S*(*t*) = 23.
	4. What does *S*(*t*) = 23 mean?
	5. Graph the function