Evaluating Functions

Evaluating function problems typically have 2 forms: Plugging in an input for x and getting out an output OR having an output and needing to find the input.

Let's practice a couple of examples of each type!

Input to Output:

What is the output of this function when the input is 5?

$$f(x) = 5x + 2$$

Plug in 5 for x and solve for f(x).

$$f(x) = 5(5) + 2$$
$$f(x) = 25 + 2$$
$$f(x) = 27$$

What is the output of this function when the input is -2?

$$f(x) = |x|$$

Follow the same process above to find f(x).

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

Output to Input:

What input to the following function has output 12?

$$f(x) = \sqrt{x} + 8$$

Plug in 12 for f(x) and solve for x to find the input.

$$12 = \sqrt{x} + 8$$

$$4 = \sqrt{x}$$

$$(4)^2 = (\sqrt{x})^2$$

$$x = 16$$

What input to the following function has output 14?

$$f(x) = x^2 + 6$$

Plug in 14 for f(x) and solve for x to find the input.

$$14 = x^2 + 6$$

$$8 = x^2$$

$$x = \sqrt{8}$$

Remember to simplify $\sqrt{8}$!

$$x = 2\sqrt{2}$$

Tips for Solving Problems:

1. The 2 types of evaluating functions (Input to Output and Output to Input) are the only forms of evaluating functions that you need to know for Algebra 1! It is not very hard, but make sure to practice these problems!

2. Make sure you know how to solve equations, not just regular one and two step equations, but also those that require taking square roots, cubing etc. Make sure to review these lessons if you need to!

3. Understand the wording of questions for evaluating functions! Any question that boils down to finding f(x) deals with OUTPUT while any question that boils down to finding x deals with INPUT.