LESSON MAKER PRO

# Function Input Lab

*Read, evaluate, and interpret function notation.*

**HIGH SCHOOL · HSF-IF.A**

**CCSS.Math.Content.HSF-IF.A** "Understand the concept of a function and use function notation"

NAME _____ DATE _____

## THE BIG IDEA

A function matches each allowed input with exactly one output. In f(x), x is the input and f(x) is the output. To evaluate a function, replace x with the given input and simplify.

## WORKED EXAMPLE

Let s(x) = 3x - 5. Find s(4).

1. Write the function value: s(4) = 3(4) - 5.
2. Multiply: 3(4) = 12.
3. Subtract: 12 - 5 = 7.

**Answer: s(4) = 7**

## PRACTICE 6 problems

**1** Let g(x) = 2x + 1. Find g(6).

**ANSWER** _____

**2** Let h(x) = $x^2$ - 9. Find h(-1).

**ANSWER** _____

**3** The table defines function r. Find r(0).

**FUNCTION R**

| x | r(x) |
|---|---|
| -6 | 12 |
| 0 | -2 |
| 8 | 14 |

**ANSWER** _____

**4** Is the relation {(0, 8), (1, 12), (0, 14)} a function? Explain briefly.

**ANSWER** _____

**5** For n(x) = 10/(x - 2), which input cannot be used?

**ANSWER** _____

**6** At a school event, a(x) gives the volunteer hours earned for x shifts. What does a(11) = 24 mean?

**ANSWER** _____

## APPLY IT Show your work

**1** A resale app gives an $8 signup bonus and pays $6 for each used game sold. The function e(n) = 6n + 8 gives the dollars earned after selling n games. Find e(9).

WORK SPACE

**ANSWER** _____

**2** A student has a $72 digital game budget. The function b(t) = 72 - t gives the dollars remaining after spending t dollars. Find b(20), then state what it means.

WORK SPACE

**ANSWER** _____

## CHALLENGE One step up

Function j is defined by j(x) = 8x - 11. Find x when j(x) = 37. Explain your reasoning.

WORK SPACE AND ANSWER

**ANSWER KEY**

# Function Input Lab

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## PART 1 · PRACTICE

| # | PROBLEM | ANSWER |
|---|---|---|
| 1 | Let g(x) = 2x + 1. Find g(6). | **g(6) = 13** |
| 2 | Let h(x) = $x^2$ - 9. Find h(-1). | **h(-1) = -8** |
| 3 | The table defines function r. Find r(0). | **r(0) = -2** |
| 4 | Is the relation {(0, 8), (1, 12), (0, 14)} a function? Explain briefly. | **No. The input 0 has two outputs, 8 and 14.** |
| 5 | For n(x) = 10/(x - 2), which input cannot be used? | **x = 2** |
| 6 | At a school event, a(x) gives the volunteer hours earned for x shifts. What does a(11) = 24 mean? | **Eleven shifts earn 24 volunteer hours.** |

## PART 2 · APPLY IT

1. **e(9) = 62, so the student earns $62.** Substitute 9 for n: e(9) = 6(9) + 8. Multiply and add to get 62.
2. **b(20) = 52. After spending $20, the student has $52 remaining.** Substitute 20 for t: b(20) = 72 - 20 = 52. The output is the remaining budget in dollars.

## CHALLENGE

**x = 6, because j(6) = 8(6) - 11 = 37.**

Accept equivalent function-value statements, such as 13 for g(6). For the relation item, students must state that one input cannot have more than one output.