LESSON MAKER PRO

Function Input Files

Read, evaluate, and interpret function notation.

HIGH SCHOOL · HSF-IF.A.2

CCSS.Math.Content.HSF-IF.A.2 "Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context."

NAME _____ DATE _____

THE BIG IDEA

In f(a), a is the input and f(a) is the output. To evaluate a function, replace the variable with the given input, then simplify. The domain tells which inputs are allowed.

WORKED EXAMPLE

Given $h(t) = 2t + 7$, find $h(6)$.

1. $h(6) = 2(6) + 7$
2. $h(6) = 12 + 7$
3. $h(6) = 19$

Answer: h(6) = 19

PRACTICE 6 problems

1 Given $p(x) = 5x - 8$, find $p(4)$.

ANSWER _____

2 Given $q(x) = x^2 - 9$, find $q(-3)$.

ANSWER _____

3 Given $r(x) = (x + 10)/5$, find $r(15)$.

ANSWER _____

4 The domain of g is {-5, 0, 9}. If g(-5) = 14, g(0) = 1, and g(9) = 8, find g(9).

ANSWER _____

5 In a game, m(w) = 15 - 3w represents the energy points remaining after w rounds. Interpret m(4) = 3 in context.

ANSWER _____

6 For $s(x) = 1/(x - 11)$, is $s(11)$ defined? Explain.

ANSWER _____

APPLY IT Show your work

1 During a gaming session, B(t) = 88 - 4t gives a phone's battery percentage t hours after the session begins. The phone is at 88% when the session begins. Find B(5), then interpret your answer.

WORK SPACE

ANSWER _____

2 A school club sells custom stickers. P(n) = 3n - 12 represents the club's profit in dollars after selling n stickers. Find P(9), then interpret your answer.

WORK SPACE

ANSWER _____

CHALLENGE One step up

An app's storage function is S(g) = 64 - 5g, where g can be any whole number from 0 through 12. Decide whether each statement is meaningful: S(10) = 14 and S(13) = -1. Explain your reasoning.

WORK SPACE AND ANSWER

Function Input Files

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	Given p(x) = 5x - 8, find p(4).	**p(4) = 12**
2	Given q(x) = x^2 - 9, find q(-3).	**q(-3) = 0**
3	Given r(x) = (x + 10)/5, find r(15).	**r(15) = 5**
4	The domain of g is {-5, 0, 9}. If g(-5) = 14, g(0) = 1, and g(9) = 8, find g(9).	**g(9) = 8**
5	In a game, m(w) = 15 - 3w represents the energy points remaining after w rounds. Interpret m(4) = 3 in context.	**After 4 rounds, 3 energy points remain.**
6	For s(x) = 1/(x - 11), is s(11) defined? Explain.	**No. s(11) is undefined because it would require division by 0.**

PART 2 · APPLY IT

1. **B(5) = 68. After 5 hours of gaming, the phone battery is at 68%.** Substitute 5 for t: B(5) = 88 - 4(5) = 68. Interpret 68 as the battery percentage after 5 hours.
2. **P(9) = 15. After selling 9 stickers, the club has a profit of $15.** Substitute 9 for n: P(9) = 3(9) - 12 = 15. Interpret 15 as profit in dollars.

CHALLENGE

S(10) = 14 is meaningful because 10 is in the domain. S(13) = -1 is not meaningful because 13 is outside the domain, so S(13) is not defined.

Accept equivalent substitution work and context statements that clearly identify the input and output. For the challenge, students should distinguish between an arithmetic result and an input that is allowed by the stated domain.