LESSON MAKER PRO

Functions in Action

Find outputs and explain what they mean.

HIGH SCHOOL · MT.CORE.ALG.FUN.4

MT.CORE.ALG.FUN.4 "Use function notation, evaluate functions, and interpret statements that use function notation in context. This standard should incorporate cultural context relating to Montana Indigenous Peoples and local communities."

NAME _____ DATE _____

INPUTS AND OUTPUTS

In f(a), a is the input. Replace x with a in the function rule to find the output. In a real situation, explain a function statement by naming what the input and output measure.

WORKED EXAMPLE

If f(x) = 4x + 7, find f(3).

1. Replace x with 3: f(3) = 4(3) + 7.
2. Multiply: f(3) = 12 + 7.
3. Add: f(3) = 19.

Answer: f(3) = 19

PRACTICE 6 problems

1 If f(x) = 2x + 5, find f(6).

ANSWER _____

2 If g(x) = x^2 - 10, find g(-2).

ANSWER _____

3 If h(x) = 20 - x/2, find h(10).

ANSWER _____

4 If p(x) = -5x + 9, find p(0).

ANSWER _____

5 A student media club tracks interviews for a Montana community history project. The table shows i(x), the number of interviews completed after x weeks. Find i(5) and explain what it means.

COMPLETED INTERVIEWS

Weeks, x	Interviews, i(x)
0	0
1	2
2	5
5	11

ANSWER _____

6 For a student open mic, r(x) = 6x + 2 gives the setup time in minutes for x microphones. Find r(5) and explain what it means.

ANSWER _____

APPLY IT Show your work

1 A student club plans a visit to Salish Kootenai College in Pablo, Montana. Its transportation budget is C(x) = 80 + 15x dollars for x riders. Find C(6) and explain what it means.

WORK SPACE

ANSWER _____

2 Students on the Fort Peck Reservation plan a youth film showcase. The planned time is T(x) = 12x + 18 minutes for x short films, including 18 minutes for introductions. If the showcase lasts 90 minutes, how many films are planned? Write and explain a function notation statement.

WORK SPACE

ANSWER _____

CHALLENGE One step up

A student club compares two travel plans for a Montana community event. Plan A takes A(x) = 2x + 35 minutes, and plan B takes B(x) = 5x + 11 minutes, where x is the number of stops. Find x when A(x) = B(x). Explain what the equality means.

WORK SPACE AND ANSWER

ANSWER KEY

Functions in Action

HIGH SCHOOL · MT.CORE.ALG.FUN.4

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	If f(x) = 2x + 5, find f(6).	**f(6) = 17**
2	If g(x) = x^2 - 10, find g(-2).	**g(-2) = -6**
3	If h(x) = 20 - x/2, find h(10).	**h(10) = 15**
4	If p(x) = -5x + 9, find p(0).	**p(0) = 9**
5	A student media club tracks interviews for a Montana community history project. The table shows i(x), the number of interviews completed after x weeks. Find i(5) and explain what it means.	**i(5) = 11. The club has completed 11 interviews after 5 weeks.**
6	For a student open mic, r(x) = 6x + 2 gives the setup time in minutes for x microphones. Find r(5) and explain what it means.	**r(5) = 32. Setting up 5 microphones takes 32 minutes.**

PART 2 · APPLY IT

1. **C(6) = 170. The budgeted transportation cost for 6 riders is $170.** Substitute 6 for x: C(6) = 80 + 15(6) = 170.
2. **6 films; T(6) = 90 means the 6 films and introductions take 90 minutes.** Solve 12x + 18 = 90 to get x = 6. Substituting confirms T(6) = 90.

CHALLENGE

x = 8. With 8 stops, both plans take 51 minutes, so A(8) = B(8) = 51.

Accept equivalent explanations that correctly identify the input and output with their units. For the challenge, students can solve by setting the two expressions equal or by checking function values.