

# Function Input Finders

*Evaluate each function, then connect outputs to meaning.*

**HIGH SCHOOL • MA.912.F.1.2**

**MA.912.F.1.2** "Given a function represented in function notation, evaluate the function for an input in its domain. For a real-world context, interpret the output."

NAME \_\_\_\_\_

DATE \_\_\_\_\_

## EVALUATE BY SUBSTITUTING

To evaluate a function, replace the input variable with the given value and simplify. Only evaluate inputs that are in the function's domain, and use the output's units when a function models a real situation.

## WORKED EXAMPLE

If  $f(x) = 7x + 2$ , find  $f(6)$ .

1. Replace  $x$  with 6:  $f(6) = 7(6) + 2$ .
2. Multiply:  $7(6) = 42$ .
3. Add:  $42 + 2 = 44$ .

**Answer:  $f(6) = 44$**

## PRACTICE 6 problems

**1** If  $g(x) = 4x + 1$ , find  $g(8)$ .

ANSWER \_\_\_\_\_

**2** If  $h(x) = x(x + 9)$ , find  $h(-3)$ .

ANSWER \_\_\_\_\_

**3** If  $p(x) = (x + 10)/5$ , find  $p(15)$ .

ANSWER \_\_\_\_\_

**4** If  $q(x) = -3x + 13$ , find  $q(4)$ .

ANSWER \_\_\_\_\_

**5** If  $r(x) = (1/3)x + 8$ , find  $r(12)$ .

ANSWER \_\_\_\_\_

**6** If  $s(x) = |x - 12| + 5$ , find  $s(21)$ .

ANSWER \_\_\_\_\_

## APPLY IT Show your work

- 1** The total cost of concert tickets is modeled by  $C(n) = 18n + 9$ , where  $n$  is the number of tickets. Find  $C(4)$  and interpret the result.

WORK SPACE

ANSWER \_\_\_\_\_

- 2** A phone's battery charge is modeled by  $B(h) = 100 - 8h$ , where  $h$  is the number of hours since it was fully charged. Find  $B(9)$  and interpret the result.

WORK SPACE

ANSWER \_\_\_\_\_

## CHALLENGE One step up

### CHALLENGE

The function  $m(x) = ((x + 5)(x - 5))/(x - 5)$ . Is  $m(5)$  defined? Explain your reasoning.

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## PART 1 · PRACTICE

| # | PROBLEM                                   | ANSWER                          |
|---|-------------------------------------------|---------------------------------|
| 1 | If $g(x) = 4x + 1$ , find $g(8)$ .        | <b><math>g(8) = 33</math></b>   |
| 2 | If $h(x) = x(x + 9)$ , find $h(-3)$ .     | <b><math>h(-3) = -18</math></b> |
| 3 | If $p(x) = (x + 10)/5$ , find $p(15)$ .   | <b><math>p(15) = 5</math></b>   |
| 4 | If $q(x) = -3x + 13$ , find $q(4)$ .      | <b><math>q(4) = 1</math></b>    |
| 5 | If $r(x) = (1/3)x + 8$ , find $r(12)$ .   | <b><math>r(12) = 12</math></b>  |
| 6 | If $s(x) =  x - 12  + 5$ , find $s(21)$ . | <b><math>s(21) = 14</math></b>  |

## PART 2 · APPLY IT

1.  **$C(4) = 81$ . Four concert tickets cost \$81.** Substitute 4 for  $n$ :  $C(4) = 18(4) + 9 = 81$ .
2.  **$B(9) = 28$ . After 9 hours, the phone has 28% battery charge.** Substitute 9 for  $h$ :  $B(9) = 100 - 8(9) = 28$ .

## CHALLENGE

**No.  $m(5)$  is undefined because the denominator,  $5 - 5$ , equals 0.**

Accept correct substitution work and equivalent simplified forms. For the word problems, students should state both the numerical output and what that output means in the context.