

## HW 5-2

NAME \_\_\_\_\_

1. The function  $t = f(s)$  represents the number of school busses,  $t$ , needed to transport  $s$  students to school. Interpret the meaning of the statement  $f^{-1}(33) = 650$ .

2. Let  $f(x) = -\frac{1}{3}x + 11$ . Write an equation for  $g(x)$ , the inverse of  $f$ .

3. A table of selected values is given for a one-to-one function,  $g$ . What is  $g^{-1}(1)$ ?

$x$	-4	-2	0	1	5	8
$g(x)$	10	8	-3	-1	-4	1

4. Let  $m = f(t)$  represent the total money earned while working at a company for  $t$  years. Explain what information is given by the function  $f^{-1}$ . Be sure to include both the input and the output in your explanation.

5. If  $(-9, 4)$  is on the graph of  $f$ , which of the following ordered pairs is on the graph of  $f^{-1}$ ?

A)  $(9, -4)$

B)  $\left(-9, \frac{1}{4}\right)$

C)  $(4, -9)$

D)  $\left(4, -\frac{1}{9}\right)$

6. Consider the function  $c = f(d) = d^3 + 5$ .

a. What is the independent variable of  $f^{-1}$ ?

b. What is the dependent variable of  $f^{-1}$ ?

c. Find  $f^{-1}$ .



7.

A sink is filled with 54 quarts of water. The function  $q = f(t) = 54 - 2.5t$  gives the volume of water in a sink, in quarts,  $t$  seconds after removing the stopper.

- a. Find  $f^{-1}$ .
- b. What does the input of  $f^{-1}$  represent? What does the output of  $f^{-1}$  represent?
- c. How long will it take for the sink to drain completely?
- d. How long will it take for the sink to lose one third of its water?

8.

Let  $g(x) = \sqrt{2x - 6}$ .

- a. Find  $g^{-1}$ .
- b. Use compositions to verify that  $g$  and  $g^{-1}$  are in fact inverses