

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**SQUARE ROOT FUNCTIONS AND SHIFTING**  
**COMMON CORE ALGEBRA I HOMEWORK**

**FLUENCY**

1. Given the function  $f(x) = \sqrt{x-8} + 3$ , which of the following is the value of  $f(24)$ ?

- (1) 7                                      (3) 3  
(2) 11                                      (4) 4

2. If  $g(x) = 4\sqrt{x}$  then  $g(45)$  is

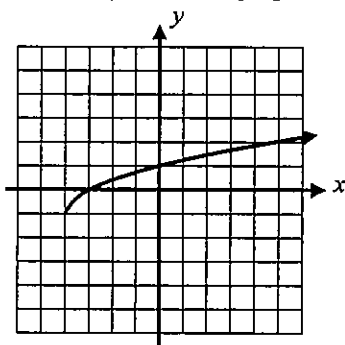
- (1)  $7\sqrt{5}$                                       (3)  $36\sqrt{5}$   
(2)  $12\sqrt{5}$                                       (4)  $22\sqrt{5}$

3. Which of the following values of  $x$  is *not* in the domain of  $y = \sqrt{x-8}$ ? Remember, the domain is the set of all inputs ( $x$ -values) that give an real output ( $y$ -value)?

- (1)  $x = 12$                                       (3)  $x = 8$   
(2)  $x = 10$                                       (4)  $x = 7$

4. Which of the following is the equation of the square root graph shown below?

- (1)  $y = \sqrt{x+4} + 1$   
(2)  $y = \sqrt{x+4} - 1$   
(3)  $y = \sqrt{x-4} - 1$   
(4)  $y = \sqrt{x-4} + 1$



5. Which of the following gives the range of the function  $y = |x-1| + 7$ ? Hint: Create a sketch by hand or on your calculator to help solve this problem.

- (1)  $y \leq 1$                                       (3)  $y \geq 7$   
(2)  $y \geq 1$                                       (4)  $y \leq 7$

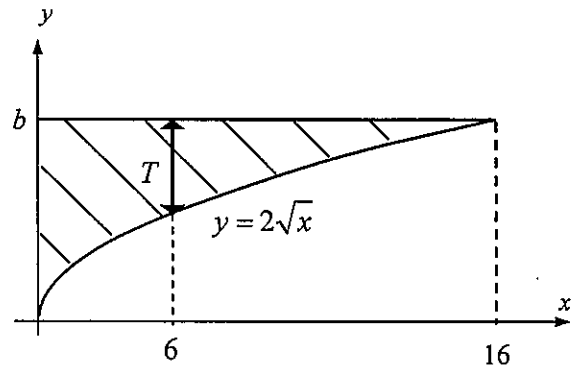


## APPLICATIONS

6. The bottom edge of a 16-foot long cantilever is given by the equation  $y = 2\sqrt{x}$ , where  $y$  is the distance the bottom edge is from ground height, in feet.

(a) What is the value of  $b$ , the height of the cantilever, in feet?

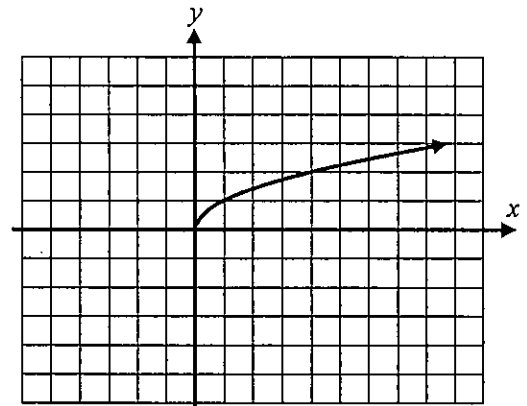
(b) To the nearest *tenth* of a foot, what is the thickness,  $T$ , of the cantilever at  $x = 6$  feet?



## REASONING

7. On the grid shown to the right,  $y = \sqrt{x}$  is graphed. Without using your calculator, create a table and graph  $y = -\sqrt{x}$  on the same set of axes.

$x$	0	1	4	9
$y = -\sqrt{x}$				



Explain the effect on the graph of  $y = \sqrt{x}$  by multiplying by  $-1$ .

8. Graph the function  $f(x) = -\sqrt{x+3} + 2$  on the grid below. Show the table that you created by hand or using your calculator. Then, state its domain and range.

Table:

Domain:

Range:

