

2.8 Inverse Functions

AP Precalculus

Name: _____

CA #1

Find the inverse of each function and list the domain and range of $f^{-1}(x)$.

1. $f(x) = (x - 8)^2 + 4$ for $x \geq 8$

2. $f(x) = (x + 9)^2 - 6$ for $x \leq -9$

3. $f(x) = \sqrt{x - 7} + 1$

Domain of $f^{-1}(x)$:

Domain of $f^{-1}(x)$:

Domain of $f^{-1}(x)$:

Range of $f^{-1}(x)$:

Range of $f^{-1}(x)$:

Range of $f^{-1}(x)$:

4. $f(x) = -\sqrt{x - 1} + 3$

5. $f(x) = \frac{2}{x+5}$

Domain of $f^{-1}(x)$:

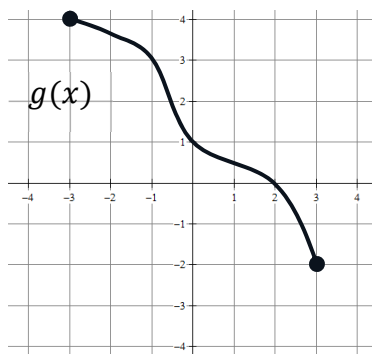
Domain of $f^{-1}(x)$:

Range of $f^{-1}(x)$:

Range of $f^{-1}(x)$:

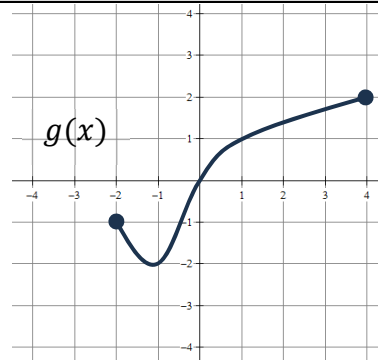
The graph of a function is given below. Identify if the function is invertible. Sketch the graph of the inverse regardless of whether or not it is invertible.

6.



Is $g(x)$ invertible?

7.



Is $g(x)$ invertible?

Use the tables below to find the given values.

8.

x	$f(x)$
1	6
2	4
3	2
4	1
5	3
6	5

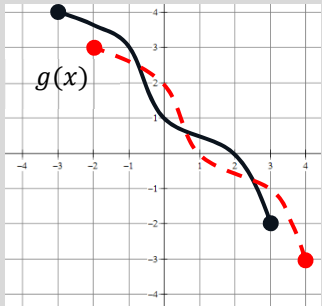
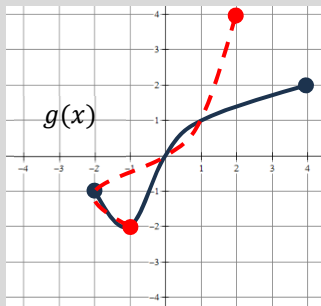
- a. $f(1)$ d. $f^{-1}(4)$
 b. $f(6)$ e. $f(2)$
 c. $f^{-1}(1)$ f. $f^{-1}(6)$

9.

x	$f(x)$
-7	-2
-2	13
0	1
1	6
6	-7
13	0

- a. $f(1)$ d. $f^{-1}(0)$
 b. $f(13)$ e. $f(-7)$
 c. $f^{-1}(-2)$ f. $f^{-1}(6)$

Answers to 2.8 CA #1

1. $f^{-1}(x) = \sqrt{x-4} + 8$ Domain: $x \geq 4$ Range: $y \geq 8$	2. $f^{-1}(x) = -\sqrt{x+6} + 9$ Domain: $x \geq -6$ Range: $y \leq -9$	3. $f^{-1}(x) = (x-1)^2 + 7$ Domain: $x \geq 1$ Range: $y \geq 7$	4. $f^{-1}(x) = (x-3)^2 + 1$ Domain: $x \leq 3$ Range: $y \geq 1$
5. $f^{-1}(x) = \frac{2}{x} - 5$ Domain: $\mathbb{R}, x \neq 0$ Range: $\mathbb{R}, y \neq 5$	6. Yes, it is invertible 	7. No, it is not invertible. 	
8a. 6 8b. 5 8c. 4	8d. 2 8e. 4 8f. 1		9a. 6 9b. 0 9c. -7
			9d. 13 9e. -2 9f. 1