4.4 Inverse Functions

Corrective Assignment

NAME:_____

DATE:_____

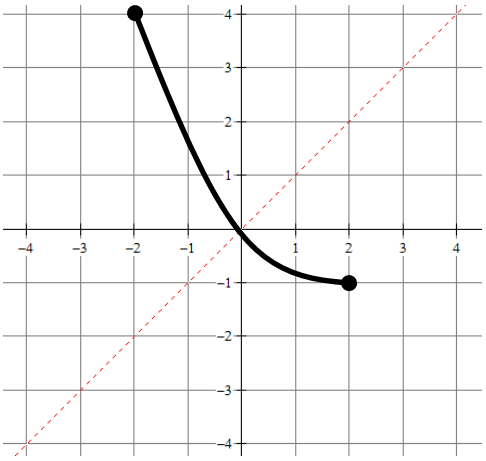
Determine if *g* is the inverse of *f*.

1. $f(x) = 2x - 4$ and $g(x) = \frac{1}{2}x - 2$

2. $f(x) = (x-3)^3 + 4$ and $g(x) = \sqrt[3]{x-4} + 3$

Find the domain and range of *f*, sketch the graph of f^{-1}, and find the domain and range of f^{-1}. The graph of $y = x$ is provided.

3.



f

D:

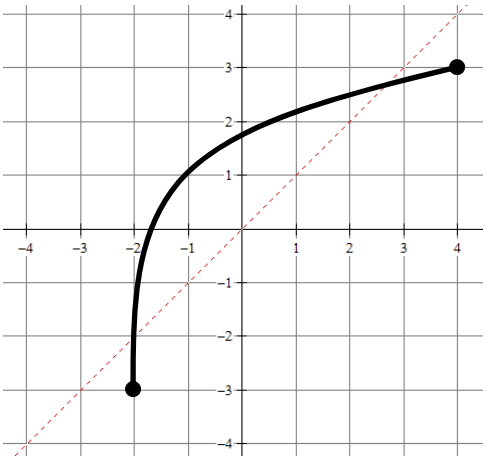
R:

f^{-1}

D:

R:

4.



f

D:

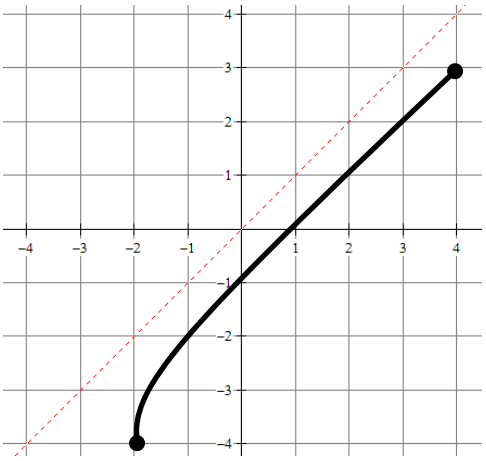
R:

f^{-1}

D:

R:

5.



f

D:

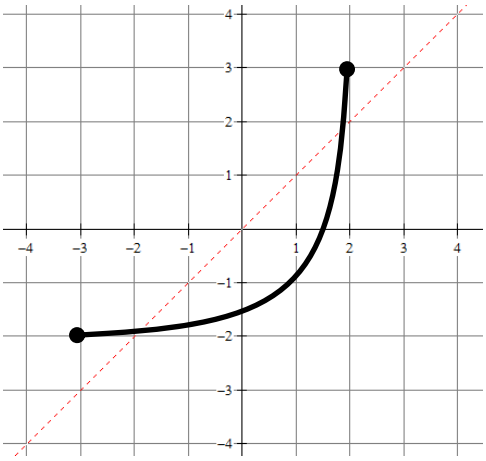
R:

f^{-1}

D:

R:

6.



f

D:

R:

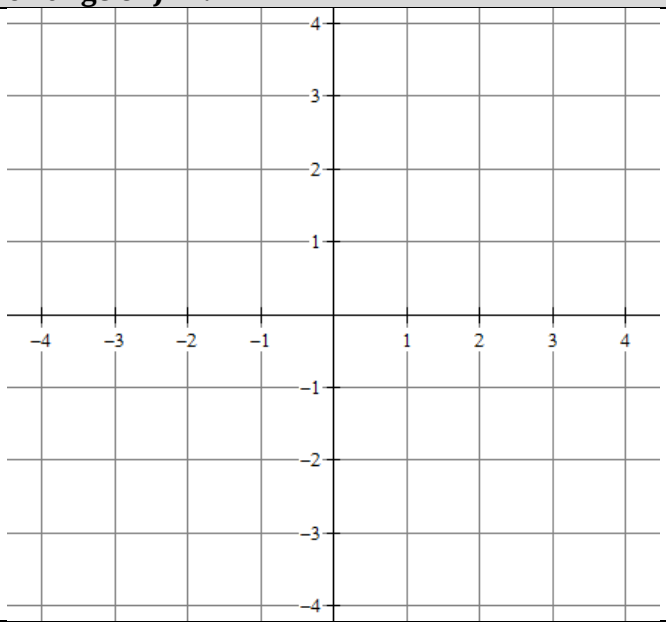
f^{-1}

D:

R:

Graph f and verify that f is one-to-one function. Find f^{-1} and add the graph of f^{-1} and the line $y = x$ to the graph f. State the domain and range of f and the domain and range of f^{-1}.

7. $f(x) = \sqrt{x+2} - 3$



f	f^{-1}
D:	**D:**
R:	**R:**

ANSWERS TO 4.4 CORRECTIVE ASSIGNMENT

1. Not Inverses

$$f(g(x)) = g(f(x)) = x$$

$f(g(x)) = x$

$2\left(\frac{1}{2}x - 2\right) - 4 = x$

$x - 4 - 4 = x$

$x - 8 \neq x$

$g(f(x)) = x$

$\frac{1}{2}(2x - 4) - 2 = x$

$x - 2 - 2 = x$

$x - 4 \neq x$

2. Inverses

$$f(g(x)) = g(f(x)) = x$$

$f(g(x)) = x$

$\left(\sqrt[3]{x-4} + 3 - 3\right)^3 + 4 = x$

$\left(\sqrt[3]{x-4}\right)^3 + 4 = x$

$x - 4 + 4 = x$

$x = x$

$g(f(x)) = x$

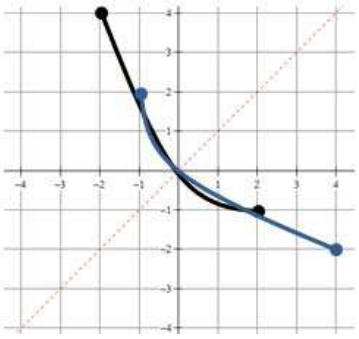
$\sqrt[3]{(x-3)^3 + 4 - 4} + 3 = x$

$\sqrt[3]{(x-3)^3} + 3 = x$

$x - 3 + 3 = x$

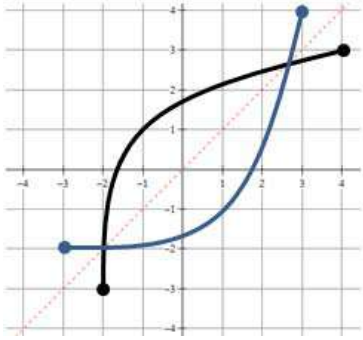
$x = x$

3.



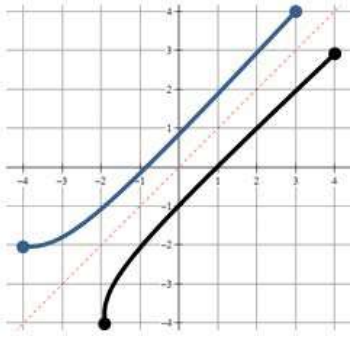
f	f^{-1}
D: [-2,2]	D: [-1,4]
R: [-1,4]	R: [-2,2]

4.



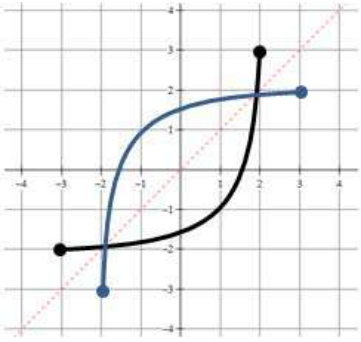
f	f^{-1}
D: [-2,4]	D: [-3,3]
R: [-3,3]	R: [-2,4]

5.



f	f^{-1}
D: [-2,4]	D: [-4,3]
R: [-4,3]	R: [-2,4]

6.



f	f^{-1}
D: [-3,2]	D: [-2,3]
R: [-2,3]	R: [-3,2]

7. $f^{-1}(x) = (x+3)^2 - 2$

f	f^{-1}
D: $[-2, \infty)$	D: $[-3, \infty)$
R: $[-3, \infty)$	R: $[-2, \infty)$