

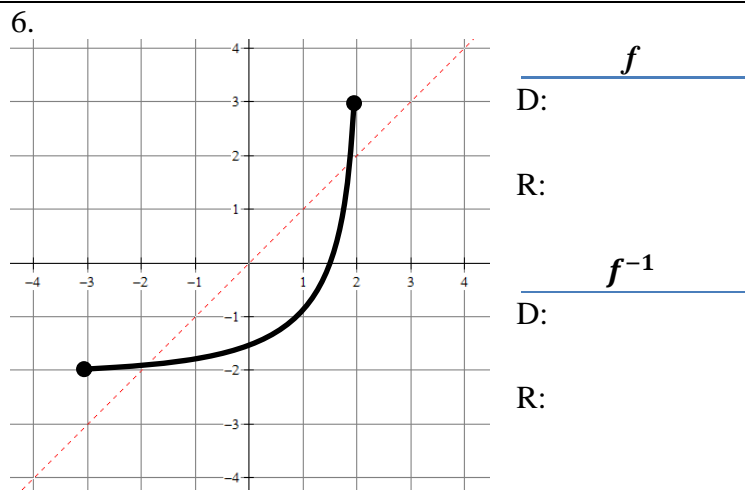
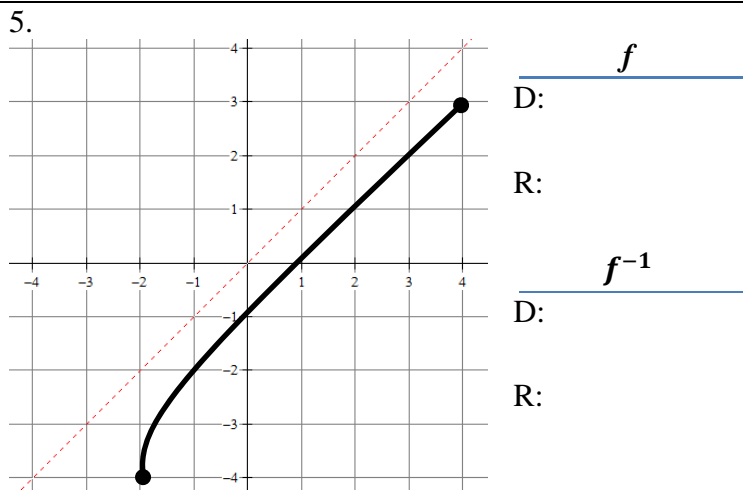
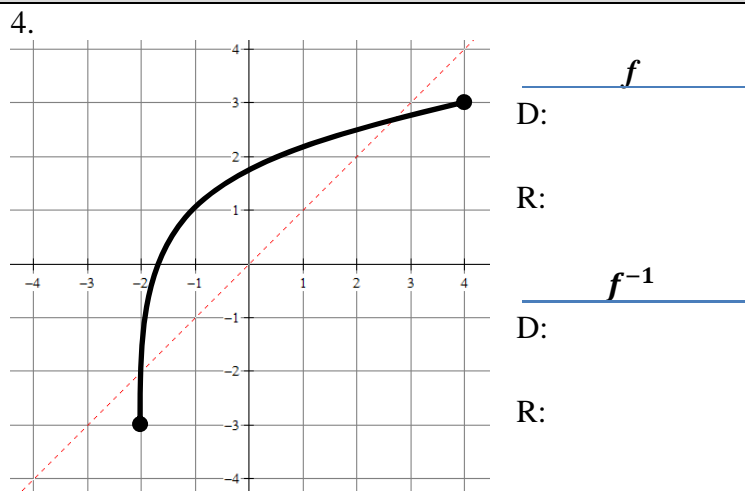
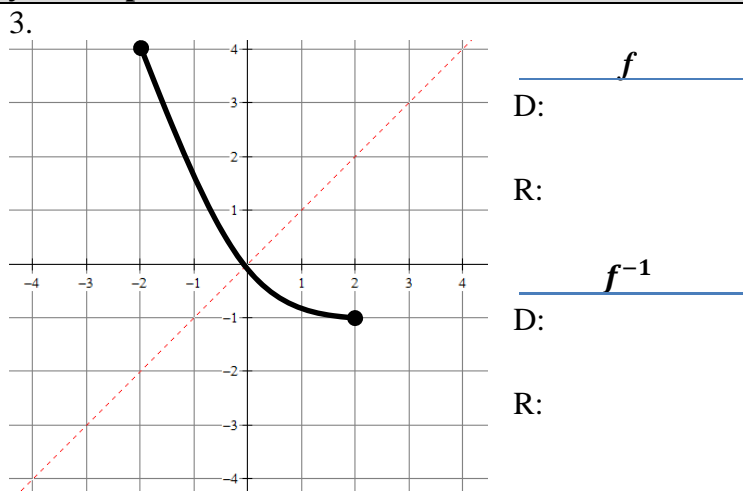
Corrective Assignment

Determine if g is the inverse of f .

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

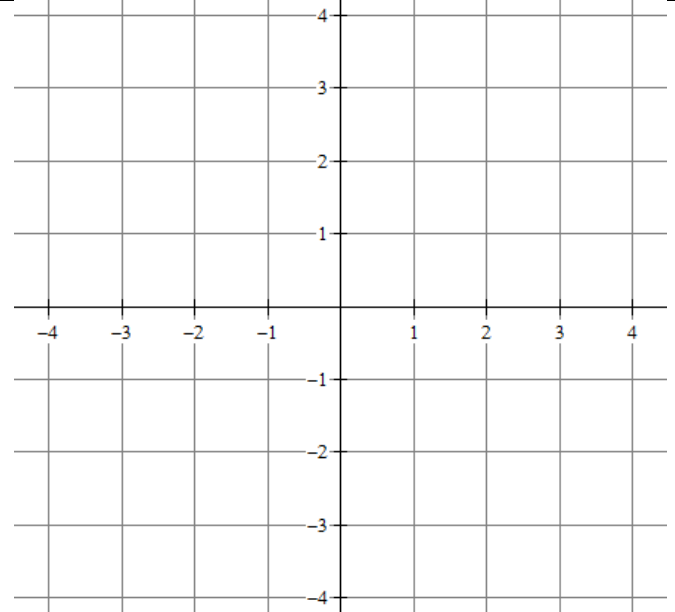
2. $f(x) = (x - 3)^3 + 4$ and $g(x) = \sqrt[3]{x - 4} + 3$

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.



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



D: f
R:

D: f^{-1}
R:

ANSWERS TO 4.4 CORRECTIVE ASSIGNMENT

1. Not Inverses

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

$$\begin{aligned} f(g(x)) &= x \\ 2\left(\frac{1}{2}x - 2\right) - 4 &= x \\ x - 4 - 4 &= x \\ x - 8 &\neq x \end{aligned}$$

$$\begin{aligned} g(f(x)) &= x \\ \frac{1}{2}(2x - 4) - 2 &= x \\ x - 2 - 2 &= x \\ x - 4 &\neq x \end{aligned}$$

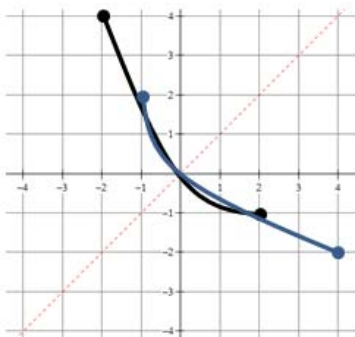
2. Inverses

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

$$\begin{aligned} f(g(x)) &= x \\ (\sqrt[3]{x-4} + 3 - 3)^3 + 4 &= x \\ &= x \\ (\sqrt[3]{x-4})^3 + 4 &= x \\ x - 4 + 4 &= x \\ x &= x \end{aligned}$$

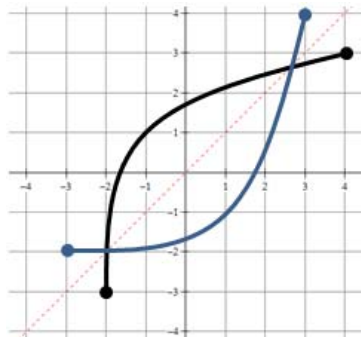
$$\begin{aligned} g(f(x)) &= x \\ \sqrt[3]{(x-3)^3 + 4 - 4 + 3} &= x \\ \sqrt[3]{(x-3)^3 + 3} &= x \\ x - 3 + 3 &= x \\ x &= x \end{aligned}$$

3.



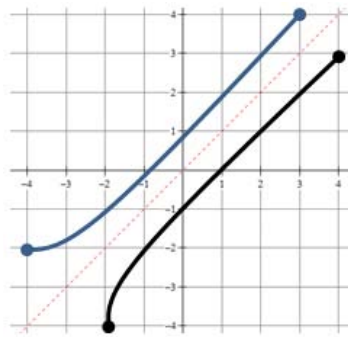
f D: [-2,2] R: [-1,4]
 f^{-1} D: [-1,4] R: [-2,2]

4.



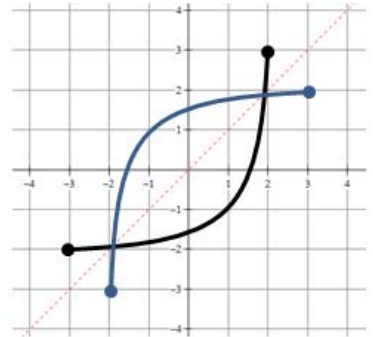
f D: [-2,4] R: [-3,3]
 f^{-1} D: [-3,3] R: [-2,4]

5.



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

6.



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

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

f
D: [-2, ∞)
R: [-3, ∞)

f^{-1}
D: [-3, ∞)
R: [-2, ∞)

