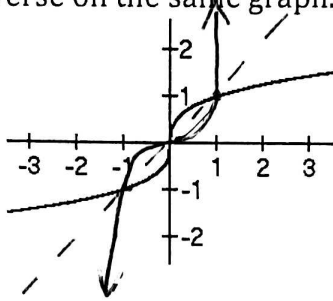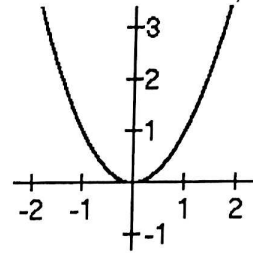HW 8-5 Inverses
Secondary III

Name: Selected Answers
Date: _____ Class: _____

Determine whether the following functions are one-to-one. If so, sketch a graph of the inverse on the same graph.

1.

2.

Find $f^{-1}(x)$ for each of the following and state the domain of $f^{-1}(x)$ including any inherited restrictions from f(x).

3. $f(x) = 3x - 6$

$x = 3y - 6$

$y = \dfrac{x+6}{3}$

no restrictions

$\boxed{f^{-1}(x) = \dfrac{1}{3}x + 2}$

4. $f(x) = \dfrac{2x-3}{x+1}$

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

$x = \sqrt{y-3}$

$x^2 = y - 3$ $\boxed{x \geq 3}$

$\boxed{f^{-1}(x) = x^2 + 3}$

6. $f(x) = x^3$

7. $f(x) = \sqrt[3]{x+5}$

$x = \sqrt[3]{y+5}$

$x^3 = y + 5$

no restrictions

$\boxed{f^{-1}(x) = x^3 - 5}$

Selected Answers

8. Which function is the inverse of $f(x) = 3x - 2$?

a. $f^{-1}(x) = \dfrac{x-3}{2}$
b. $f^{-1}(x) = 2 - 3x$
c. $f^{-1}(x) = \dfrac{x+2}{3}$
d. $f^{-1}(x) = \dfrac{x-2}{3}$

9. Which function is the inverse of $f(x) = x^3 + 1$

a. $f^{-1}(x) = \sqrt[3]{x-1}$
b. $f^{-1}(x) = \sqrt[3]{x} - 1$
c. $f^{-1}(x) = \sqrt[3]{x+1}$
d. $f^{-1}(x) = 1 - x^3$

$x = y^3 + 1$