Chapter 4
Section 4.6
Working with Functions and Inverses

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1. Determine if the following functions are invertible. Explain why. If so, find the inverse function. If you have extra time, find the domain and range of each function and its inverse.

- $f(x) = 4x + 7$

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

- $\log_2(x + 1)$

- $g(x) = |x| - |x - 6|$

- $h(x) = 10^{x/3}$

2. Let $f(x) = x^3 + 2$, $g(x) = \log(2x)$ and $h(x) = 10^{x/2}$. Find the following compositions.

- $f \circ g$
- $g \circ f$
- $g \circ h$
- $h \circ g$
- $h \circ f \circ g$

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3. For his services, a private investigator charges a $500 retention fee plus $80 an hour. Let x represent the number of hours worked.

(a) Find a function f that models the investigator's fee as a function of x.

(b) Find f^{-1}. What does f^{-1} represent?

(c) Find $f^{-1}(1220)$. What does your answer represent?