Name: _____

Inverse Functions

Exercise 1: Which of these functions do not have an inverse?

1. f = {(-1,2),(-3,1),(0,2),(5,6)}
2. g = {(-3,0),(-1,1),(0,5),(2,6)}
3. h = {(2,2),(3,1),(6,5),(7,1)}

Exercise 2: Find the inverse of $f(x)$

1) $f(x) = 9x - 7$

2) $f(x) = 3x - 12$

3) $f(x) = 9x^3 - 3$

4) $f(x) = x^2 + 7$

5) $f(x) = 6x^2 + 8$

6) $f(x) = x^2$

7) $f(x) = x^5 - 7$

8) $f(x) = x - 8$

Exercise 3: The life expectancy, L, of a child, at birth can be modeled by the formula

$$L = f(t) = \frac{t + 66.94}{0.01t + 1}$$

where t is the year of birth and $t = 0$ corresponding to 1950.

1) Find a formula for the inverse function.
2) Estimate $f^{-1}(70)$ and give a practical interpretation.

Exercise 4: Given y = f(x) is a one-to-one function, suppose $f(2) = -5$. What is $f^{-1}(-5)$?

Exercise 5: Given y = f(x) is a one-to-one function, suppose $f(a) = b$. What is $f^{-1}(b)$?

Exercise 6: Find the inverse function, $f^{-1}(x)$, given the one-to-one function $f(x) = \frac{x-5}{2x+3}$.

Exercise 7: Find the inverse function, $g^{-1}(x)$, given the one-to-one function $g(x) = 2x^3 - 1$.