Name: _____ Date: _____

**Instructions:** Please complete the following problems.

**Problem 1.** Graph the following function and state if it is one-to-one or not (explain how you determined this): $f(x) = -x^2 - 2$

**Problem 2.** Graph the following function and state if it is one-to-one or not (explain how you determined this): $f(x) = |x| + 3$

**Problem 3.** Verify if $f(x) = x^2 + 5$ and $g(x) = \sqrt{x - 5}$ are inverses of each other or not.

**Problem 4.** Verify if $f(x) = 2x + 1$ and $g(x) = \frac{x-1}{2}$ are inverses of each other or not.

**Problem 5.** Find the inverse: $f(x) = 5x + 2$

**Problem 6.** Find the inverse: $f(x) = \frac{1}{3x-4}$

**Problem 7.** Find the inverse: $f(x) = \frac{2x-3}{5x+7}$

**Problem 8.** Given that $f(x) = (x - 1)^2$, $x \geq 1$, find $f^{-1}(x)$ and determine the domain and range of $f^{-1}(x)$.