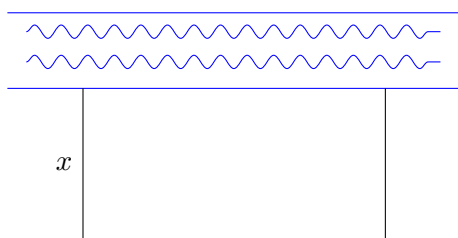


Math 29
PAL Worksheet 7

- Let $g(x) = 2(x + 1)^2 - 3$.
 - Graph $y = g(x)$. Explain why g is not invertible.
 - Let $f(x) = 2(x + 1)^2 - 3$, $x \leq -1$. (The function f is just the function g with a restricted domain.) Explain why f is invertible.
 - What are the domain and range of f ? What are the domain and range of f^{-1} . Graph the function f and, using the reflection about the line $y = x$, also graph f^{-1} on the same axes.
 - Using algebra, determine the rule for $f^{-1}(x)$. (Your final answer should include any restrictions on the domain of f^{-1} .)
- A farmer has 1500 feet of fencing and wants to fence off a rectangular field, where one side of the field will be along a straight river which will not require any fencing. If x represents the width of the field, write a function that gives the area A of the field as a function of x .



- For each quadratic function, first complete the square and locate the vertex of the graph. Then sketch the graph, labeling the exact value of the y -intercept and the x -intercept(s), if any.
 - $f(x) = x^2 - x - 12$
 - $f(x) = 3x^2 - 6x + 8$
 - $f(x) = -3x^2 + 4x + 1$
 - $f(x) = \frac{3}{5}x^2 - 6x$
 - $f(x) = \frac{1}{2}x^2 + x - 5$
 - $f(x) = 3x^2 - \frac{1}{2}x + 1$