Homework #5
Due: February 16, 2004

Show your work on your own paper, initialed, stapled together with this page, or facsimile, as the first page.

1. Make a table of values and graph each relation in the $x,y$-plane. Explain whether or not each is a function. If a function, find its domain and range.
   (a) $|y| = |x|
   (b) $x - y^3 = 1
   (c) $y = \sin x$

2. Find the domain of definition for $y = \frac{x}{\sqrt{1 - x^2}}$.

3. Find the domain and range of the function given by graph.

4. Answer the following function classification questions.
   (a) Give an example of a quadratic polynomial.
   (b) Give an example of an algebraic function that isn’t a rational function.
   (c) Give an example of an exponential function.
   (d) What type of function is $y = |x|$, algebraic or transcendental?
   (e) What type of function is $y = \tan x$, algebraic or transcendental?

5. Give the formulas for $f + g$, $f - g$, $g - f$, $fg$, $f/g$, $f \circ g$, and $g \circ f$ for $f(x) = \frac{1}{x}$ and $g(x) = x^2 - x$. 