10 January 2008

WorkSheet1

1. Determine whether the following are one-to-one functions.

   (a) $g(x) = (x-2)^3$

   (b) $h(x) = -3(x+1)^4$

   (c) $f(x) = \cos(x)$

   (d) $g(x) = \sqrt{x+2}$

2. Decide if the functions:

   $$f(x) = x^3 - x \text{ and } g(x) = x^3 + x$$

   are one-to-one functions by taking the derivative of each. Explain how this helps you make your decisions.

3. Is the function $f(x) = x^2$ a one-to-one function? If not, how could you change the domain of f to make it into a one-to-one function and what would it's inverse function be?

4. Find formulas for the inverse of the given functions and give their domains.

   (a) $f(x) = 4 + 2x$

   (b) $y = \frac{1-\sqrt{x}}{1+\sqrt{x}}$

5. If $f(x) = x^5 - x^3 + 2x$, find $(f^{-1})'(2)$.