11 Writing Assignment Due Thursday, April 23

Choose a function $f(x)$. A function $g(x)$ is called a *right inverse* to f if

$$f(g(x)) = x.$$

In other words, if you (i) begin with a number x, (ii) apply g to get a new number called $g(x)$, and (iii) apply f to $g(x)$, you get back the number x you began with.

Here are some examples:

1. If $f(x) = e^x$, a right inverse g is given by $\ln(x)$.
2. If $f(x) = \cos(x)$, a right inverse g is given by $\arccos(x)$.
3. If $f(x) = \tan(x)$, a right inverse g is given by $\arctan(x)$.
4. If $f(x) = x$, a right inverse g is given by x.
5. If $f(x) = x^3$, a right inverse g is given by $x^{1/3}$.

Note that the domain of a right inverse is often determined by the range of f.

For each of the above examples, try drawing the graph of f, and the graph of a right inverse g to f. How are the two graphs related? For example, draw the line $y = x$ with the graphs of f and g. It should seem like the graph of g is obtained by "reflecting" the graph of f along the line $y = x$.

Prompt. Why should it be true that a graph of a right inverse is obtained by reflecting the graph of f along the line $y = x$?

Format. See online. Only PDF uploads are accepted on Canvas.