

Pondering Inverses

Consider $f(x)$ given below:

x	$f(x)$
-2	-6
-1	-4
0	-2
1	0
2	2
3	4

1. What is $f^{-1}(0)$?
2. What is $f^{-1}(-4)$?
3. Graph $f(x)$.
4. Graph $f^{-1}(x)$.
5. How are the graphs of $f(x)$ and $f^{-1}(x)$ related? Why?

1. Let $S(Q)$ give the fraction of TAB patrons consuming salads as a function of the quality of lunch. Assume that the lunch quality Q is measured on a scale of 1 to 5, with 5 indicating yumminess and 1 indicating inedibility.
 - (a) Sketch a possible graph for $S(Q)$.
 - (b) Sketch the inverse of $S(Q)$.
 - (c) What is the meaning of $S(4.2) = 0.5$?
 - (d) What is the meaning of $S^{-1}(0.78) = 3.9$?

2. The yumminess Q of TAB dinners increases quickly during the first three weeks of the term. It then decreases slowly for the rest of the term.
 - (a) Sketch a possible graph for $Q(t)$, the quality of TAB dinners as a function of time, where time is measured in weeks since the start of a term.
 - (b) Sketch a possible graph for $Q^{-1}(t)$.