# Inverses

While working in a group make sure you:

- Expect to make mistakes but be sure to reflect/learn from them!
- Are civil and are aware of your impact on others.
- Assume and engage with the strongest argument while assuming best intent.

1. Given a tube partway filled with liquid will have a height dependent on the temperature. That is, we have height, h, as a function of Temperature, T.

   (a) What does $h(32) = 1$ mean in physical terms?

   (b) Describe the inverse function h^{-1} by identifying the inputs, outputs, and what it measures.

2. Let m be the function completely defined by the table:

$\star$	$m(\star)$	$\star$	$m^{-1}(\star)$
1	-3	-3	
$\frac{3}{2}$	2	2	
π	$\sqrt{2}$	$\sqrt{2}$	
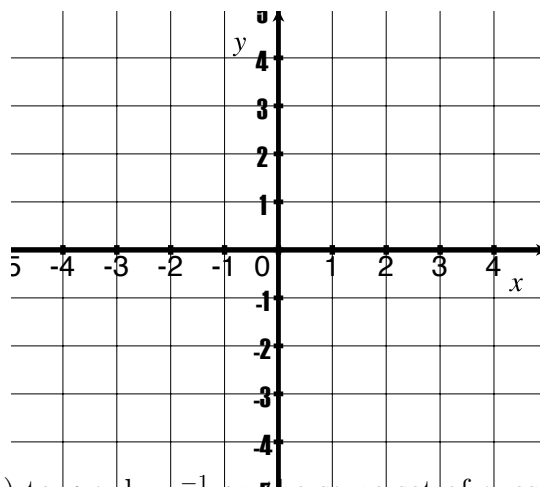
   (a) Complete the table above to define m^{-1}.

   (b) Plot the graph of m on the set of axes provided.

   (c) Use a different mark (or color) to graph m^{-1} on the same set of axes.

   (d) Find the domain of m and range of m^{-1}. Are there any similarities?

   The observations you made in (e) is true in general, and more:
   if f is the inverse of g then: Domain of f=Range of g Range of f=Domain of g

3. Let n be the function defined by the following graph:

   (a) Will n have an inverse? Why?

   (b) Use the observations from #1d to graph n^{-1}.