

10. [11 points] An effective cleaning solution can be made by mixing vinegar and water. Starting with 2 liters of a solution that is one-half water and one-half vinegar, v liters of vinegar are added to the solution. Let $C = g(v)$ be the concentration of vinegar in the resulting solution.

That is, $g(v) = \frac{\text{Total volume of vinegar}}{\text{Total volume of solution}}$ after v liters of vinegar are added.

- a. [2 points] Find a formula for $g(v)$.

Answer: $g(v) =$ _____

- b. [2 points] Describe, in the context of this problem, the behavior of $g(v)$ as $v \rightarrow \infty$.

- c. [4 points] Find a formula for $g^{-1}(C)$.

Answer: $g^{-1}(C) =$ _____

- d. [3 points] Find and interpret, in the context of this problem, $g^{-1}(0.75)$.