

2. [11 points] The Wasem Fruit Farm produces and sells apples to its visitors during the Fall.
- Let $f(t)$ be the number of apples sold at the Wasem Fruit Farm t days after September 10.
 - The revenue (in dollars) obtained by the Wasem Fruit Farm from selling a apples is given by the function $g(a)$.

A local diner produces hot apple cider.

- Let $h(p)$ be the number of gallons of hot apple cider produced by the diner with p apples.
- The revenue (in dollars) obtained by the diner from selling c gallons of hot apple cider is given by the function $j(c)$.

Assume that all the functions defined above have an inverse.

- a. [5 points] Write a practical interpretation of the following mathematical expressions:

i) $g(f(10)) = 199$:

ii) $g^{-1}(20)$:

- b. [3 points] Let a_0 be the average amount of apples sold in a day by Wasem Fruit Farm. The function $Q(y)$ gives the number of gallons of hot apple cider the diner can produce with y more apples than the average amount sold in a day by the farm. Find a formula for $Q(y)$ in terms of the functions defined above.

$$Q(y) = \underline{\hspace{10cm}}$$

- c. [3 points] Write down an equation that represents the following statement:

The revenue obtained by Wasem Fruit Farm on September 25 is equal to the revenue obtained by the diner for the sale of 21 gallons of hot apple cider.

Equation: $\underline{\hspace{10cm}} = \underline{\hspace{10cm}}$