4. [13 points]
   a. [6 points] Two companies, Altor and Bear, decide to invest in Cease, a small start up company, in January 2014. Let \( A(m) \) and \( B(m) \) be the money invested in Cease, in thousands of dollars, \( m \) months after January 2014 by Altor and Bear, respectively.
   
   i) Find a formula for \( I(y) \), the amount of money, in thousands of dollars, invested by Alton and Bear on Cease \( y \) years after January 2014.
   
   \[
   \text{Solution:} \quad A(12y) + B(12y)
   \]

   ii) Assume that only Alton and Bear invest in Cease. Find a mathematical expression that represents the fraction of the money invested in Cease by Alton in March 2014.
   
   \[
   \text{Solution:} \quad \frac{A(2)}{A(2) + B(2)}.
   \]

   b. [7 points] A patient has a high fever and goes to a hospital. At the hospital, the patient receives a fever reducing medication intravenously to reduce his body temperature.

   • Let \( F(s) \) be the amount of medication (in milligrams) in the patient’s body \( s \) minutes after the medication was administered.
   
   • Let \( G(s) \) be the patient body’s temperature (in \( ^\circ \text{F} \)) \( s \) minutes after the medication was administered.

   Assume that the functions \( F \) and \( G \) are invertible. Find practical interpretation of the following mathematical expressions:

   i) \( G(100) = 105 \)

   \[
   \text{Solution:} \quad \text{The patient body’s temperature is } 105^\circ \text{F one hundred minutes after the medication was administered.}
   \]

   ii) \( F^{-1}(100) \)

   \[
   \text{Solution:} \quad \text{The number of minutes after the medication was administered at which the patient has 100 milligrams of medication in his body.}
   \]

   iii) \( F(G^{-1}(100)) \)

   \[
   \text{Solution:} \quad \text{The amount of medication in the patient’s body when his body temperature is } 100^\circ \text{F.}
   \]