7. [11 points] In a small isolated island, the local government has decided to start a recycling program. Consider the following functions:

- Let $F(r)$ be the amount of money (in millions of dollars) that the local government has to spend in order to recycle r tons of garbage.
- Let $G(p)$ be the amount of recyclable garbage (in tons) the island generates in a year when there are p thousands of people living in the island.
- Let $H(t)$ be the amount of people (in thousands) living in the island t years after 2010.

Assume that the functions F, G and H have inverses.

a. [6 points] Find a practical interpretation to the following mathematical expressions:

i) $F(3) = 2$

ii) $G(H(4))$

b. [1 point] Let A be the average rate of change of the function G for $3 \leq p \leq 5$. What are the units of A?

Units of A=_____

c. [4 points] Fill in the blanks in the following statements using the correct mathematical expression. A list of possible answers are listed below. Write your own expression if the correct expression is not on the list.

i) The government spends 25 millions of dollars to recycle _____ tons of garbage.

ii) There were _____ thousand people living in the island when the local government spent 25 million dollars recycling garbage.

$F(G(25))$	$H(25)$	$G(25)$	$F^{-1}(G^{-1}(25))$	$H^{-1}(25)$
$G^{-1}(F^{-1}(25))$	$G^{-1}(25)$	$F^{-1}(25)$	$G(F(25))$	$F(25)$