5. [16 points] At concerts put on by the band Emergency Kittens, the band tours with kittens that are available for adoption, and plays soothing music while concert-goers play with the kittens.

- $K = g(t)$ is the number of kittens traveling with the band t days into their tour.
- $S = h(K)$ is the amount of time, in hours per day, that band members spend snuggling with kittens when they are traveling with K kittens.
- $h^{-1}(S)$ is a function. (That is, $h(K)$ is invertible.)
- Some values of t and K are given in the table below.

t	3	5	8	9
K	18	22	23	22

a. [3 points] Based on the information in the table, could t be a function of K? Briefly explain your answer.

Answer*(circle one):*

      Yes (t could be a function of K)   **No** (t could **not** be a function of K)

Explanation:

b. [4 points] Using the table, find the average rate of change of $g(t)$ from $t = 3$ to $t = 8$, and interpret your answer in the context of the problem.

Answer: _____

Interpretation:

c. [9 points] For each of the following, either give a practical interpretation of the mathematical expression, or explain why it doesn't make sense in the context of the problem.

(i) $g(10) = 25$

(ii) $h(g(4))$

(iii) $h^{-1}(5) \geq 8$