8. [15 points] The cost of computer memory has changed dramatically over time. Let $C(t)$ be the cost, in dollars per gigabyte, of computer memory t years after 1956. Some estimated data for C is provided in the table below.[1]

t	0	33	38	44	48	55
$C(t)$	$10,000,000$	$36,000$	1000	20	1	0.035

a. [3 points] Find and interpret, in the context of this problem, the average rate of change of $C(t)$ for $33 \leq t \leq 38$. (Use a complete sentence and include units.)

b. [4 points] Based on the data provided in the table above, could the function $C(t)$ be linear, exponential, or neither linear nor exponential? (*Circle one.*)

Linear Exponential Neither linear nor exponential

Justify your answer numerically (i.e. show your work and explain your reasoning).

c. [2 points] Based on the data provided in the table above, is the function $C(t)$ increasing, decreasing, or neither increasing nor decreasing on the entire interval from $t = 0$ to $t = 55$? (*Circle one.*)

Increasing Decreasing Neither increasing nor decreasing

d. [2 points] Based on the data provided in the table above, is the function $C(t)$ concave up, concave down, or neither concave up nor concave down on the entire interval from $t = 0$ to $t = 55$? (*Circle one.*)

Concave Up Concave Down Neither concave up nor concave down

e. [4 points] Estimate $C^{-1}(46)$. Then interpret its meaning in the context of this problem. (Use a complete sentence and include units.)

[1] Source: http://en.wikipedia.org/wiki/Memory_storage_density