

f r q



0	1	2
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The student response includes both of these criteria.

- Two equations
- Values of a and b

Model Solution

(i) Because $R(0) = 75$ and $R(3) = 70.84$, two equations to find a and b are

$$a + b \ln(0 + 1) = 75$$

$$a + b \ln(3 + 1) = 70.84.$$

(ii) $a = 75$

$$b = -3.000806$$

$$R(t) = 75 - 3.001 \ln(t + 1)$$

9. Part B

- (i) Use the given data to find the average rate of change of the scores, in points per month, from $t = 0$ to $t = 3$ months. Express your answer as a decimal approximation. Show the computations that lead to your answer.
- (ii) Interpret the meaning of your answer from (i) in the context of the problem.
- (iii) Consider the average rates of change of R from $t = 3$ to $t = p$ months, where $p > 3$. Are these average rates of change less than or greater than the average rate of change from $t = 0$ to $t = 3$ months found in (i)? Explain your reasoning.

Part B

Select a point value to view scoring criteria, solutions, and/or examples to score the response.



0	1	2	3
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The student response includes all three of these criteria.

- Correct average rate of change based on logarithmic $R(t)$ from Part A