

4. [10 points] Alex Artakis, the lead singer of Neverclear, left his pool uncovered when he went on tour. Due to the warm weather the pool loses 2.25% of its volume every week after the tour began. Let $v(w)$ be the volume, in m^3 , of Alex's pool w weeks after the tour began. When he left to go on tour the pool was full and had a volume of 120 m^3 .

a. [2 points] Based on the description above, answer each of the following questions. Pick the best answer for each – you do NOT need to explain your reasoning for this question.

(i) Which of the following accurately describes $v(w)$?

i. $v(w)$ is increasing

iii. $v(w)$ is constant

ii. $v(w)$ is decreasing

iv. NONE OF THESE

(ii) What kind of function is $v(w)$?

i. $v(w)$ is linear

iii. $v(w)$ is exponential

ii. $v(w)$ is quadratic

iv. NONE OF THESE

b. [4 points] Write a formula for $v(w)$ in terms of w , the number of weeks since the tour began.

Answer: $v(w) =$ _____

c. [4 points] Evaluate $v(10)$, giving your answer in exact form or rounded to the nearest hundredth, and give a practical interpretation of your answer in the context of the problem. *Use a complete sentence and include units.*

Answer: $v(10) =$ _____

Interpretation: