8. [18 points] The figure below gives the graph of a function \( A = b(m) \). The function is periodic and a full period is shown on the graph.

\[ A \]

\[ \text{m} \]

\[ \text{0} \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \]

\[ \text{0} \quad 2000 \quad 4000 \quad 6000 \quad 8000 \quad 10000 \quad 12000 \]

\( b \)

\( m \)

\( 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \)

\[ A \]

\[ \text{0} \quad 2000 \quad 4000 \quad 6000 \quad 8000 \quad 10000 \quad 12000 \]

\( b \)

\( m \)

\( 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \)

\[ A \]

\[ \text{0} \quad 5000 \quad 10000 \quad 15000 \quad 20000 \quad 25000 \quad 30000 \quad 35000 \]

\( b \)

\( m \)

\( 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \)

\[ A \]

\[ \text{0} \quad 5000 \quad 10000 \quad 15000 \quad 20000 \quad 25000 \quad 30000 \quad 35000 \]

\( b \)

\( m \)

\( 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \)

\[ A \]

\[ \text{0} \quad 2000 \quad 4000 \quad 6000 \quad 8000 \quad 10000 \quad 12000 \]

\( b \)

\( m \)

\( 0 \quad 2 \quad 4 \quad 6 \quad 8 \quad 10 \quad 12 \)

\[ A \]

\[ \text{0} \quad 2000 \quad 4000 \quad 6000 \quad 8000 \quad 10000 \quad 12000 \]

\( b \)

\( m \)

\[ \text{a.} \quad [8 \text{ points}] \quad \text{For each of the following graphs, give an expression for the function depicted in terms of the function } b. \]

\( f(m) = b(m + 6) \)

\( g(m) = 3b(m + 1) \)

\( h(m) = 3b(m - 1) \)

\( j(m) = -b(m) + 11000 \)
b. [4 points] The function \( b \) from the previous page represents the number of bushels of Michigan-grown organic apples, \( A \), available in Michigan grocery stores as a function of the number of months, \( m \), after January 1. The function \( A = b(m) \) is repeated below.

Which of the graphs on the preceding page could best correspond to the statement:

“In Washington, the apple growing season starts a month earlier, and the peak grocery store supply is three times as much as in Michigan.” Explain your answer.

\[ \text{Solution:} \quad \text{The graph of} \quad g(m) \quad \text{best corresponds to the statement above. The graph of} \quad g(m) \quad \text{has a peak which is three times higher than that of} \quad b(m) \quad \text{and the graph has been shifted one unit to the left to signify the growing season beginning one month earlier.} \]

\[ \text{Note, graphs may differ–answer is not unique.} \]