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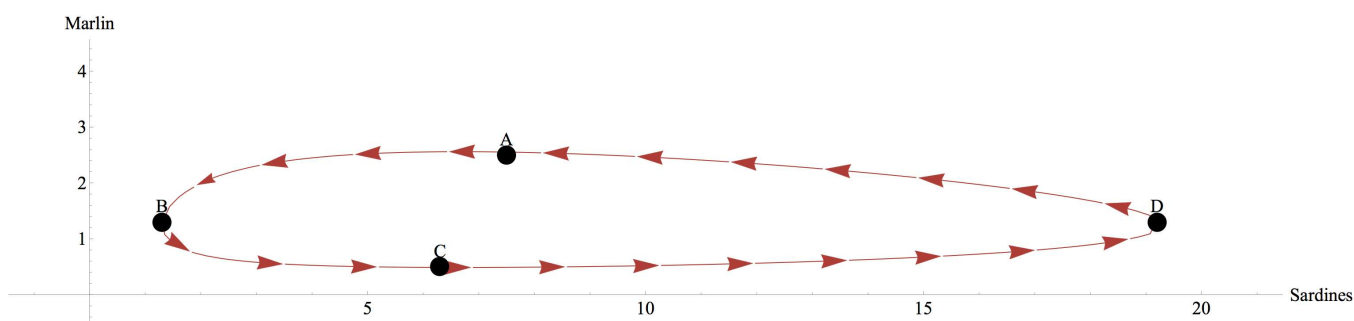
1.5.2 Quiz: Populations Oscillate

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Question 1

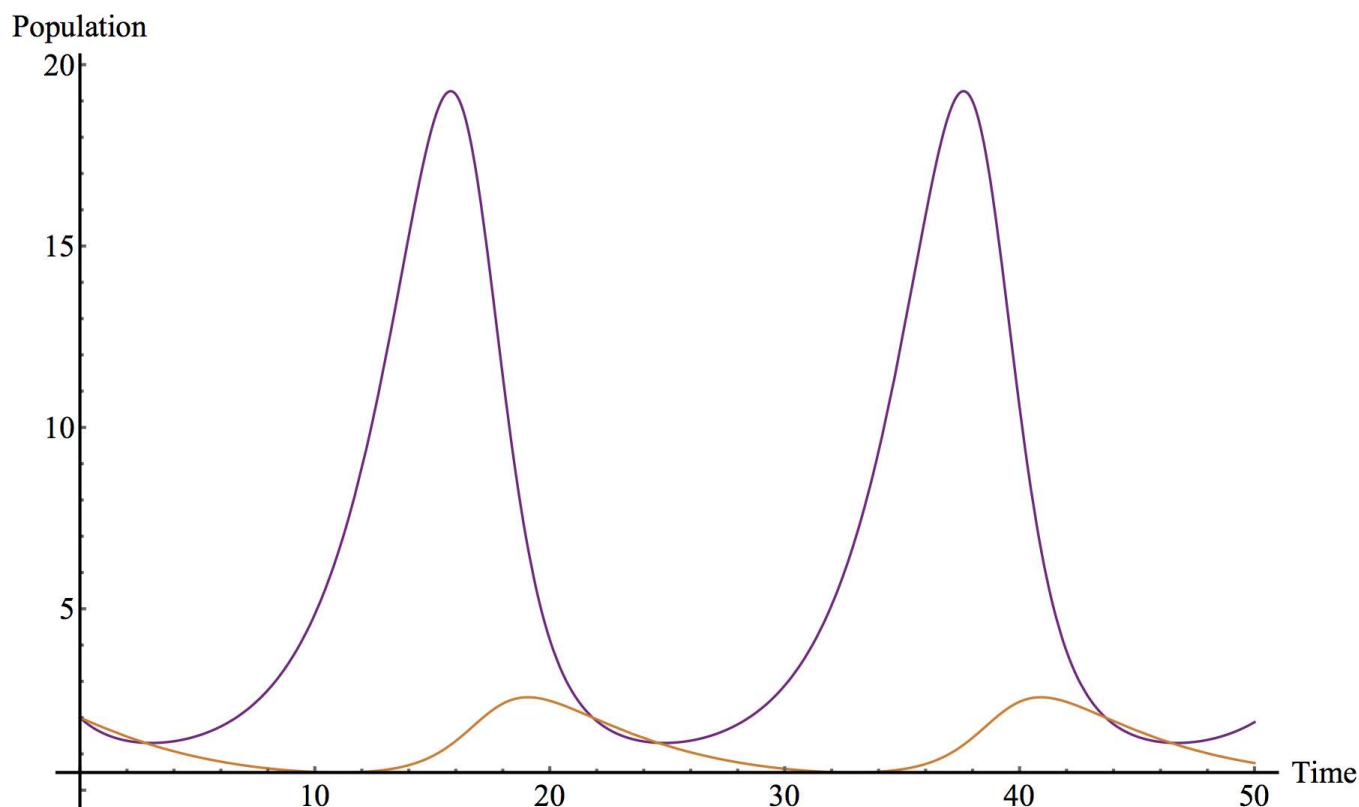
4/4 points (graded)

Match each of the points indicated on the cycle with the time it occurs during the first cycle. (Here time is measured in quarter years (3 month periods).)



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Image Description

(Hint: Look at the number of marlin and sardines at each point. Are either at a maximum? a minimum? How would this show up on the graph of number of sardines versus time? On the graph of number of marlin versus time?)

A	B	C	D
<input type="text" value="t ≈ 19"/>	<input type="text" value="t ≈ 3"/>	<input type="text" value="t ≈ 11"/>	<input type="text" value="t ≈ 16"/>
✓ Answer: $t \approx 19$	✓ Answer: $t \approx 3$	✓ Answer: $t \approx 11$	✓ Answer: $t \approx 16$

Explanation

At point A, the sardine population is neither at a maximum nor minimum (there are roughly 700,000 sardines) but the marlin population appears to be at a max of about 250. Thus this should correspond to the maximum on the curve indicating the size of the marlin population, which occurs at $t \approx 19$.

At point B, the sardine population is at a minimum. By looking at the graph of size of sardine population versus time this occurs at approximately $t = 3$.

We can find the corresponding times for points C and D using similar strategies.

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You have used 1 of 3 attempts

i Answers are displayed within the problem

Question 2

1/1 point (graded)

The **cycle length**, L , of a closed trajectory traced out by the points $(S(t), M(t))$, is the amount of time it takes for the populations to return to their initial values.

What is the approximate value of L ?

☐ $L \approx 10$

☐ $L \approx 12$

☐ $L \approx 20$

☒ $L \approx 22$ ✓

☐ $L \approx 44$

Explanation

Approximately 22. This is about 22 quarter years, so about $22/4$ years, a cycle length of a little over 5 years.

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You have used 2 of 3 attempts

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