



Course > Section... > 2.2 The... > 2.2.4 E...

2.2.4 Exploratory Quiz: Computing Average Value, Part II

🔖 Bookmark this page

For this quiz, you'll want to use paper and pencil for computations.

Multiple Choice

1/1 point (graded)

Compute \overline{M} , the average value of the marlin population, using the second expression we found for $M(t)$:

$$\overline{M} = \frac{1}{L} \int_0^L \left(\frac{\mathbf{a}}{\mathbf{b}} - \frac{1}{\mathbf{b}} \frac{1}{S} \frac{dS}{dt} \right) dt.$$

Here are some hints:

- **Remember:** \mathbf{a} and \mathbf{b} are constants (for example, $\mathbf{a} = 0.5$ and $\mathbf{b} = 0.4$ in the example from the Part I of this section.)
- Integrate each term separately.
- The integral $\int_0^L \frac{1}{S} \frac{dS}{dt} dt$ can be simplified with a substitution $u = S(t)$.
- Keep in mind that L is the length of cycle. This means $S(L)$, the sardine population at time L , is equal to $S(0)$, the sardines' starting population.

☐ $\frac{1}{L} \frac{\mathbf{a}}{\mathbf{b}}$

☒ $\frac{a}{b}$



☐ $\frac{1}{L} \frac{b}{a}$

☐ $\frac{b}{a}$

☐ None of the above.


Explanation

See the next video for the computation of this integral. The final solution is $\overline{M} = \frac{a}{b}$.

Submit

i Answers are displayed within the problem

Learn About Verified Certificates

© All Rights Reserved



English ▼

© 2012–2018 edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open edX logos are registered trademarks or trademarks of edX Inc. | 粵ICP备17044299号-2

POWERED BY
OPENedX

