

Errata and Updates for 2023 ACTEX Manual for Exam FAM-L 1st Edition 2nd Printing

(Last updated 08/09/2024)

Note the SoA changes back from **modified policy values** (as in the official textbook) to **modified reserves** (as suggested in the SoA study note). This affects a few places in Chapters 6 and 7 and also a few chapter-end problems.

Page 19 **Problem 22. (c)**

It should read:

Show that

$${}_t p_x = 1 - \frac{t}{\omega - x}, \quad 0 \leq t < \omega - x, \quad x < \omega.$$

Page 29 **Fourth line from above.**

Update the link to: <https://www.soa.org/4a481b/globalassets/assets/files/edu/2022/2022-10-exam-fam-l-tables.pdf>

Page 35 **10th line from bottom.** μ_{x+k} should be μ_{x+r} .

Page 68 **Solution to Problem 5**

The second equation should read:

$$l_{41.7} = 0.3 \times l_{41} + 0.7 \times l_{42} = 0.3 \times 9,287,264 + 0.7 \times 9,259,571 = 9,267,879.$$

Page 82 **Bottom line.**

The equation should be:

$$\begin{aligned} E(Z^2) &= \int_0^{\infty} (v^t)^2 {}_t p_x \mu_{x+t} dt \\ &= \int_0^{\infty} e^{-2\delta t} {}_t p_x \mu_{x+t} dt. \end{aligned}$$

Page 99 **Example 3.8, the end of part (d) question wording.**

The figure 0.85 should be 8500.

Page 158 **Example 4.5.** Remove the first line “For Joe, who is age 60, you are given that ${}_t p_{60} = \exp[0.5(1 - 1.05^t)]$.”

Page 217 **Example 5.2,** part (a) question wording. $\mu_x = x$ should be changed to $\mu_x = \mu$.

Page 232 **Example 5.15,** 3rd lines from the end of the solution. The figure 0.05 given for the variance should be changed to 0.25. This line should read:

..., the variance is 0.25. So,

Page 284 **Third to bottom line.**

Change the left-hand side of the equation to $1000A_{35:\overline{20}|}^1 + 2000{}_{20|}A_{35}$.

Page 285 **Eighth line.**

Change the left-hand side of the equation to $1000A_{45:\overline{10}|}^1 + 2000{}_{10|}A_{45}$.

Page 288 **Example 6.6,** 2nd line from the bottom. The first term on the right side of the equation has a typo. ${}^2A_{n:\overline{n}|}$ should be changed to ${}^2A_{x:\overline{n}|}$.

Page 289 **8th line from the top.** This is the first equation line under (3) m-payment year n-year term insurance of 1. Remove the extra minus sign. It should read:

$$A_{x+h:\overline{n-h}|}^1 - {}_m P_{x:\overline{n}|}^1 \ddot{a}_{x+h:\overline{m-h}|}$$

Page 295 **Example 6.10.** This question does refers to data from Example 6.1. At the beginning of the question, add “For the policy given in Example 6.1”

Page 302 **Exercise 7. (iii)** Change $i = 0.005$ to $i = 0.05$.

Page 340 **3rd line from the top.** It should read:

Therefore, if $\beta > {}_h P_{x:\overline{n}|}$, then ${}_t V^{\text{mod}} < {}_t V$, and vice versa.

Page 380 **Eleventh line.**

Change the equation to

$$\widehat{\text{Var}}(\hat{q}_x) \approx e^{-2\hat{\mu}_x} \times \frac{d_x}{w_x^2} = (1 - \hat{q}_x)^2 \frac{d_x}{w_x^2}.$$

Page 380 **2nd line from the bottom,** Change 40.4 to 40.375, it should read: Employee 251: employed at age 40.375 and died at age 40.75

Page 439 **Question 10, first line.** Change “fully discrete endowment insurance” to “fully discrete whole life insurance”.

Before Page 1 Add the Preface below:

Thank you for choosing ACTEX.

In 2022, the SoA launched Exam FAM-L (Fundamentals of Actuarial Mathematics – Long-Term). To help you prepare for this exam, ACTEX developed this brand new study manual, written by Professor Johnny Li and Andrew Ng who have deep knowledge in the exam topics.

Distinguishing features of this study manual include:

- We use graphics extensively. Graphical illustrations are probably the most effective way to explain formulas involved in Exam FAM-L. The extensive use of graphics can also help you remember various concepts and equations.
- A sleek layout is used. The font size and spacing are chosen to let you feel more comfortable in reading. Important equations are displayed in eye-catching boxes.
- Rather than splitting the manual into tiny units, each of which tells you a couple of formulas only, we have carefully grouped the exam topics into 9 chapters and 2 appendices. Such a grouping allows you to more easily identify the linkages between different concepts, which are essential for your success as multiple learning outcomes can be examined in one single exam question.
- Instead of giving you a long list of formulas, we point out which formulas are the most important. Having read this study manual, you will be able to identify the formulas you must remember and the formulas that are just variants of the key ones.
- We do not want to overwhelm you with verbose explanations. Whenever possible, concepts and techniques are demonstrated with examples and integrated into the practice problems.

You should first study all chapters of the study manual in order. Immediately after reading a chapter, do all practice problems we provide for that chapter. Make sure that you understand every single practice problem. Finally, work on the mock exams.

Before you begin your study, please download and read the exam syllabus from the SoA’s website:

<https://www.soa.org/education/exam-req/edu-exam-fam/>

You should also check the exam home page periodically for updates, corrections or notices.

If you find a possible error in this manual, please let us know at the “Customer Feedback” link on the ACTEX homepage (www.actexamdriver.com).

[com](#)). Any confirmed errata will be posted on the ACTEX website under the “Errata & Updates” link.

Enjoy your study!