Errata and updates for ASM Exam STAM Study Manual (Second Edition Third Printing) sorted by page

[1/5/2022] On page 73, in exercise 4.24, on the latt line, change $S101$ to S_{101}.

[1/5/2022] On page 96, under Section 6.2, in the line beginning "One model showed that . . . ", change 40 to 40%.

[1/5/2022] On page 111, in the solution to exercise 7.12, on the fifth line, delete the F in s1.2083F33.

[1/5/2022] On page 135, on the fifth line of Subsection 9.2.2. change "expeneses" to "expenses".

[1/5/2022] On page 141, in the solution to exercise 9.2, on the first line, change 2015 to 2017.

[2/14/2021] On page 326, in Quiz 21-1(iv), change 2009 to 2019. In Quiz 21-1(v), insert a space after 2020.

[3/8/2021] On page 339, in the sidebar, six lines from the bottom, change $P'_N(0)$ to $P'_N(1)$.

[1/5/2022] On page 343, in exercise 22.4, in the table, delete the apostrophe before 50 in number of boats for luxury yachts.

[3/19/2021] On page 350, in exercise 22.32, on the first line, change "number of losses, X" to "number of losses, N".

[8/6/2021] On page 371, in exercise 23.30(i), change λ to β.

[4/14/2021] On page 434, on the third line, change "ae" to "are".

[4/14/2021] On page 443, in the solution to exercise 27.7, on the second to last line, change "average value of S given $S > 4903.93$" to "average value of $S - 4903.93$ given $S > 4903.93$".

[4/14/2021] On page 477, in the solution to exercise 29.7, on the fourth line of the page, change "question 29" to "question 29.5".

[4/26/2021] On page 510, in the solution to exercise 30.10, on the last line, add a λ_2 to the exponent of the first expression so that it is $\lambda_2^4 e^{-(\sum y_i - 40)\lambda_2}$.

[1/5/2022] On page 510, in the solution to exercise 30.10, 6 lines from the end, in the sentence beginning "For λ_1", in the expression, the λ in the exponent should have subscript : $\lambda_1^3 e^{-\lambda_1(40+\sum x_i)}$.

[4/26/2021] On page 511, in the solution to exercise 30.13, on the second line of the page, change θ^{30} in the denominator to θ_P^{30}.

[4/26/2021] On page 531, 3 lines from the bottom of the page, change $\frac{5}{\alpha} -$ to $\frac{5}{\alpha} +$.

[4/26/2021] On page 549, in exercise 31.42(iii), replace the matrix with

$$\begin{pmatrix} 0.0444 & 0 \\ 0 & 0.0222 \end{pmatrix}$$

[1/6/2022] On page 569, in exercise 32.13, change 2008 on the first line to 2019, and change the "Year Settled" in the table from 2006, 2007, and 2008 to 2017, 2018, and 2019.

[1/6/2002] On page 570, in exercise 32.15, on the first line, change 2008 to 2019.

[1/6/2002] On page 570, in exercise 32.16, on the first line, change 2008 to 2019.

[4/26/2021] On page 590, in the solution to exercise 33.2, on the second line, 190.84 should be 191.26, affecting all the successive calculations. Replace the entire solution with

The formula for the Weibull maximum likelihood estimate (equation (30.1)) gives

$$\hat{\theta} = \sqrt{\frac{\sum x_i^2 - 10(10^2)}{10}} = 191.26$$

Then $F^*(30)$ and $D(30)$ are

$$\hat{F}(30) = 1 - e^{-(30/191.26)^2} = 0.024303$$
$$\hat{F}(10) = 1 - e^{-(10/191.26)^2} = 0.002730$$
$$F^*(30) = \frac{0.024303 - 0.002730}{1 - 0.002730} = 0.021632$$
$$D(30) = 0.5 - 0.021632 = \boxed{\mathbf{0.4784}}$$

[4/30/2021] On page 600, on the fourth line of the fourth paragraph under "34.2 Grouped data", change $F_n^*(c_{j-1})$ to $F_n(c_{j-1})$.

[1/6/2022] On page 626, in the table of the solution to Example 35M, delete the "i" after 2017 and move the numbers for 2016 to the right under the Exposures, Mean, and Variance columns.

[4/30/2021] On page 646, in the solution to exercise 35.11, on the displayed line, change the "=" before $\frac{(4-10)^2}{10}$ to "+".

[12/26/2020] On page 722, in exercise 40.18, on the first line, change "iimited" to "limited".

[4/30/2021] On page 725, change the solution to exercise 40.19 to

$$\lambda_F = \left(\frac{\Phi^{-1}(0.99)}{0.05}\right)^2 = \left(\frac{2.326}{0.05}\right)^2 = 2164.11$$

For severity, the credibility standard is expressed in terms of number of exposures, which is number of claims. We had 1384 claims.

$$e_X = 2164.11\left(\frac{6{,}010}{55^2}\right) = 4{,}300$$
$$Z_X = \sqrt{\frac{1{,}384}{4{,}300}} = 0.567354$$

For pure premium, the credibility standard is expressed in terms of number of exposures, which is number of policies. We have 21,000 policies. We divide the usual formula for the credibility standard in terms of number of expected claims by 0.085 to express it in terms of number of policies

$$e_P = \frac{2164.11}{0.085}\left(1 + \frac{6{,}010}{55^2}\right) = 76{,}044$$
$$Z_P = \sqrt{\frac{21{,}000}{76{,}044}} = 0.525506$$

The absolute difference between credibility factors is $\boxed{\mathbf{0.0418}}$. **(A)**

[5/19/2021] On page 778, on the 10th line, change $3\lambda e^{-3\lambda}$ to $3e^{-3\lambda}$ (delete λ). On the 11th and 17th lines, once apiece, change $e^{-x/3}$ to e^{-3x}.

[5/19/2021] On page 825, in the solution to exercise 45.13, on the first three displayed lines, change every x to q: $f(x)$ should be $f(q)$ and $\mathrm{d}x$ should be $\mathrm{d}q$. Four changes.

[5/19/2021] On page 853, in the solution to exercise 47.20, on the third line, chane 370,000 to 740,000. Replace the last three sentences of the solution with

The expected process variance is 0.2(740,000)+0.8(28,000,000) = 22,548,000. Bühlmann's K is 22,548,000/2,433,600 = 9.265286. The credibility factor is

$$Z = \frac{3}{3 + 9.265286} = \boxed{\mathbf{0.2446}} \qquad \textbf{(D)}$$

[5/19/2021] On page 858, one line above the heading "The exposure unit", insert "are" between "you" and "calculating".

[8/22/2021] On page 882, in exercise 48.56, in statements (iv) through (vi), change "Risk group R" to "Risk group T".

[8/22/2021] On page 883, in exercise 48.57, on the tenth line, change "Group SR" to "Group S'.

[1/6/2022] On page 942, in the solution to exercise 50.14, on the fourth line, change $\Gamma(1.5)$ to $\Gamma(1.5)^2$.

[7/23/2021] On page 943, in the solution to exercise 50.17, replace the first two lines with:

Expected claims are 0.2(1800) = 360. The limited fluctuation estimate is based on a credibility factor of $Z = \sqrt{360/1083} = 0.5766$, and is

$$0.5766\left(\frac{200}{1800}\right) + (1 - 0.5766)(0.2) = 0.1488$$

Replace the last line with:

The percentage change is 0.1724/0.1488 − 1 = **+15.91%**. **(E)**

[1/6/2022] On page 949, in exercise 51.6(ii), at the end of the sentence, change $|lambda$ to λ.

[1/6/2022] On page 951, exercise 51.11 is a duplicate of exercise 51.5.

[5/27/2021] On page 970, two lines above equation (53.2), put a bar over X_i.

[3/15/2021] On page 973, two lines from the bottom, a sum sign is missing from the numerator. The line should be

$$= \frac{\sum_{j=1}^{n} m_j^2(\beta + \alpha/m_j)}{m^2}$$

[3/15/2021] On page 974, two lines from the bottom of the sidebar, change $v(n-1)$ to $v(r-1)$.

[5/27/2021] On page 983, in exercise 53.19, on the fourth line, add "them" between "5 of" and "each".

[5/27/2021] On page 1049, in question 17, delete the first sentence "You are given the following experience:".

[4/22/2021] On page 1143, in question 24, on the last line, change 12/31/CY7 to 12/31/CY5.

[5/27/2021] On page 1180, on the fourth line of the page, the answer key should be **(A)**.

[1/6/2022] On page 1209, in the solution to question 26, on the seonc line, change "fo" to "for".

[4/13/2021] On page 1251 in the solution to question 8: The tables for the single parameter Pareto now include the formula $\mathbf{E}[X \wedge k] = \theta\left(1 + \ln\left(\frac{k}{\theta}\right)\right)$, so the derivation of that formula on line 4-7 is unnecessary.