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

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

[8/22/2021] On page 878, in exercise 48.56, in statements (iv) through (vi), change "Risk group R" to "Risk group T".

[8/22/2021] On page 879, in exercise 48.57, on the tenth line, change "Group SR" to "Group S'.

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

[7/23/2021] On page 939, 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)**

[5/27/2021] On page 966, two lines above equation (53.2), put a bar over X_i.

[5/27/2021] On page 979, in exercise 53.19, on the fourth line, add "them" between "5 of" and "each".

[5/27/2021] On page 1045, in question 17, delete the first sentence "You are given the following experience:".

[5/27/2021] On page 1176, on the fourth line of the page, the answer key should be **(A)**.

[5/19/2021] On page 774, 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 821, 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 849, 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 854, one line above the heading "The exposure unit", insert "are" between "you" and "calculating".

[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 $F_n(c_{j-1})$.

[4/30/2021] On page 644, in the solution to exercise 35.11, on the displayed line, change the "=" before $\dfrac{(4-10)^2}{10}$ to "+".

[4/30/2021] On page 721, 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)**

[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 $\lambda_2^4 e^{-(\sum y_i - 40)\lambda_2}$.

[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

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

[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

$$\hat{F}(30) = 1 - e^{-(30/191.26)^2} = 0.024303$$
$$\hat{F}(10) = 1 - e^{-(10/191.26)^2} = 0.002730$$

$$F^*(30) = \frac{0.024303 - 0.002730}{1 - 0.002730} = 0.021632$$
$$D(30) = 0.5 - 0.021632 = \boxed{\mathbf{0.4784}}$$

[4/22/2021] On page 1139, in question 24, on the last line, change 12/31/CY7 to 12/31/CY5.

[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".

[4/13/2021] On page 1247, 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.

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

[3/15/2021] On page 969, 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 970, two lines from the bottom of the sidebar, change $v(n-1)$ to $v(r-1)$.

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

[12/26/2020] On page 718, in exercise 40.18, on the first line, change "iimited" to "limited".

[8/3/2020] On page 939, in the solution to exercise 50.16, on the fifth line, the line for Z, change the numerator from 90 to 200 + 250 + 225.

[7/9/2020] On page 1293, on the first line, change the link to `https://www.casact.org/admissions/studytools/exam3/sp05-3.pdf`.

[7/9/2020] On page 1296, on the first line, change the link to `https://www.casact.org/admissions/studytools/exam3/Fall05.pdf`.

[7/9/2020] On page 1299, on the first line, change the link to `https://www.casact.org/admissions/studytools/exam3/06-3.pdf`.

[7/9/2020] On page 1302, on the first line, change the link to `https://www.casact.org/admissions/studytools/exam3/Fall06.pdf`.

[6/22/2020] On page 131, in the solution to exercise 8.11, in the table, the headings are wrong. Here is a table with the corrected headings:

Accident Year	Incremental Paid Losses in Development Year			
	2	2	3	4
AY6				10,650
AY7			13,000	11,700
AY8		35,000	14,000	12,600

[6/21/2020] On page 1191, regarding the solution to question 11, the tables now do include the formulas you need to solve this question. The revised solution is

The formula is $1082.41(1+\text{CV}_s^2) = 1082.41\left(\frac{\mathbf{E}\left[(X\wedge 10{,}000)^2\right]}{\mathbf{E}(X\wedge 10{,}000)^2}\right)$. Using the formulas in the tables,

$$\begin{aligned}\mathbf{E}[X\wedge 10{,}000] &= 1{,}000\big(1+\ln(10{,}000/1{,}000)\big) = 3302.585\\ \mathbf{E}\left[(X\wedge 10{,}000)^2\right] &= \frac{1{,}000^2}{1-2} - \frac{2(1{,}000)}{(1-2)(10{,}000)^{1-2}}\\ &= -1{,}000{,}000 + 2(1{,}000)(10{,}000) = 19{,}000{,}000\\ 1082.41\left(\frac{\mathbf{E}\left[X^2\right]}{\mathbf{E}[X]^2}\right) &= 1082.41\left(\frac{19{,}000{,}000}{3302.585^2}\right) = \boxed{\mathbf{1885.547}} \qquad \textbf{(B)}\end{aligned}$$

[6/15/2020] On page 148, in the fourth paragraph of the solution to Example 10D, on the second-to-last line, change "diffential" to "differential".

[6/15/2020] On page 186, on the second line of the solution to Example 12K, change the left parenthesis after $\mathbf{E}[Y^L]$ to a slash. On the third line, delete the exponent 2 after $\big(1-F(500)\big)$. The sentence should then read

$\mathbf{E}[Y^P] = \mathbf{E}[Y^L]\big/\big(1-F(500)\big)$ and $\mathbf{E}[(Y^P)^2] = \mathbf{E}[(Y^L)^2]\big/\big(1-F(500)\big)$.

[5/20/2020] On page 1289, in the solution to question 24, replace the third and fourth lines with

$$\begin{aligned}l &= 4\ln\alpha + 6\alpha\ln\theta - (\alpha+1)\sum_{i=1}^{4}\ln(\theta+x_i) - 2\alpha\ln(\theta+200)\\ &= 4\ln 0.6526 + 6(0.6526)\ln 38.8571 - 1.6526\sum_{i=1}^{4}\ln(38.8571+x_i) - 2(0.6526)\ln 238.8571\\ &= -22.8443\end{aligned}$$