Errata and updates for ASM Exam P Manual (First Edition Second Printing) sorted by page

Practice Exam 2:22 and 6:25 are defective in that none of the five answer choices is correct.

[1/10/2018] On page xi, on the last line, change "at 2" to "at 3".

[11/28/2017] On page xii, on the fifth line, change $\int_0^2$ to $\int_0^3$.

[2/19/2018] On page xii, on line 14, change $x = 1 \Rightarrow x = 0$ to $x = 1 \Rightarrow y = 0$.

[8/14/2018] On page 4, on the third line and fourth lines after the answer to Example 1B, change "unions" to "intersections" in two places.

[1/26/2018] On page 20, 3 lines above Example 2C, remove the extra comma after "type 1".

[8/24/2017] On page 56, in the solution to exercise 4.11, on the last line, change 0.001/0.0071 to 0.0001/0.0071.

[11/7/2017] On page 84, in the Proof of Alternative Formula for Mean, on the third line, change $c = 1$ to $c = -1$. On the last line, change $1 - F(x) = 0$ to $\big(1 - F(x)\big)x = 0$.

[9/23/2017] On page 91, in exercise 7.12, on the fourth line, change "$a > 0$" to "$a > -1$".

[9/4/2017] On page 97, in the solution to exercise 7.10, on the line for $F(1^-)$, remove the negative sign before $\frac{1}{8}$.

[9/23/2017] On page 98, in the solution to exercise 7.13, on the second line from the end, insert "0.05" before "$K(1/3 + 2/4 + 3/5)$".

[6/12/2017] On page 114, in the solution to exercise 8.12, on the third line, change the left side to $1 - F(2000)$.

[6/12/2017] On page 131, in the solution to exercise 10.10, on the second line, change "4 from 8, $\binom{8}{4}$" to "4 from 9, $\binom{9}{4}$".

[8/6/2017] On page 162, replace the solution to exercise 12.12 with the following:

With no deductible, the expected payment for a uniform distribution is the midpoint of the interval, or 500.

With a deductible d, the expected payment is the probability that the loss is above the deductible, $1 - d/1000$, times the midpoint of the payment after the deductible, $(1000 - d)/2$. So we want

$$\left(1 - \frac{d}{1000}\right)\left(\frac{1000 - d}{2}\right) = 0.25(500) = 125$$

$$\left(\frac{1000 - d}{1000}\right)\left(\frac{1000 - d}{2}\right) = 125$$

$$(1000 - d)^2 = 125(2)(1000) = 250{,}000$$

$$1000 - d = 500$$

$$d = \boxed{\mathbf{500}} \qquad \textbf{(C)}$$

[5/8/2017] On page 177, on the second line, change $\mathbf{E}[g(x, y)]$ to $\mathbf{E}[g(X, Y)]$.

[12/8/2017] On page 188, in the solution to exercise 14.9, on the second line, change "if equal" to "is equal".

[5/9/2017] On page 209, in the solution to exercise 15.16, on the second line on the left side, change $c_i \sum X_i$ to $\sum c_i X_i$.

[7/20/2017] On page 232, replace the second line with

$$\text{Var}(Y \mid X = 0.2) = \frac{0.316}{0.648} - \left(\frac{0.424}{0.648}\right)^2 = \boxed{\mathbf{0.059518}}$$

[8/13/2017] On page 237, in the solution to exercise 17.2, on the displayed line, replace $\Pr(A \cup B)$ with $\Pr(A \cap B)$.

[9/4/2017] On page 239, in the solution to exercise 17.7, on the first displayed line, change $f_X(5)$ to $f_X(0.5)$.

[7/20/2017] On page 253, replace the solution to exercise 18.7 with:

Use the double expectation formula. Let W be the sentence and X be the amount of time in prison. Then

$$\begin{aligned}\mathbf{E}[X] &= \Pr(\text{parole})\,\mathbf{E}[X \mid \text{parole}] + \big(1 - \Pr(\text{parole})\big)\,\mathbf{E}[X \mid \text{no parole}] \\ &= \frac{2}{3}\,\mathbf{E}[X \mid \text{parole}] + \frac{1}{3}(4.5)\end{aligned}$$

To calculate $\mathbf{E}[X \mid \text{parole}]$, we use the double expectation formula again. Let $Y = X \mid \text{parole}$. If $W < 4$, then the criminal is expected to serve 2 years; otherwise he is expected to serve $W/2$.

$$\mathbf{E}[Y] = \Pr(W < 4)\,\mathbf{E}[Y \mid W < 4] + \Pr(W \geq 4)\,\mathbf{E}[Y \mid W \geq 4] = \frac{1}{3}(2) + \frac{2}{3}(2.5) = \frac{7}{3}$$

Putting our two calculations together,

$$\mathbf{E}[X] = \frac{2}{3}\left(\frac{7}{3}\right) + \frac{1}{3}(4.5) = 3\tfrac{1}{18} = \boxed{\mathbf{3.05556}}$$

[8/13/2017] On page 278, in formula (20.8), replace $i = 1$ at the bottom of the summation sign with $i = 0$.

[7/24/2017] On page 289, in the solution to exercise 20.21, on the fist line of the page, change "admission" to "admissions". On the third line of the page, change (0.2^2) to (0.2).

[8/13/2017] On page 316, in the solution to exercise 22.15, on the third displayed line, replace $\mathrm{d}y$ with $\mathrm{d}x$.

[8/4/2017] On page 331, in the solution to exercise 23.3, on the second-to-last line, put Φ before $\left(\frac{-3}{\sqrt{4}}\right)$.

[9/11/2017] On page 345, in the solution to exercise 24.5, on the fourth line, replace $\rho^2(1 - \sigma_Y^2)$ with $\sigma_Y^2(1 - \rho^2)$.

[9/14/2017] On page 345, in the solution to exercise 24.8, onthe second line, change $\mathbf{E}[X \mid Y - 10]$ to $\mathbf{E}[X \mid Y = 10]$.

[6/12/2017] On page 357, in the solution to exercise 25.11, on the fifth line, change "loss size" to "payout". On the sixth line, replace "do no" with "do not".

[8/15/2017] On page 357, in the solution to exercise 25.12, on the last line of the page, change 2,000,000 to 1,000,000.

[6/12/2017] On page 361, on the tenth and eleventh lines, change Y_i to Y.

[6/16/2017] On page 375, on the last line, change $\frac{\partial^2 M}{\partial X \partial Y}$ to $\frac{\partial^2 M}{\partial t_1 \partial t_2}$.

[6/16/2017] On page 376 in Table 27.1 on the last line, change the argument (0) to (0,0) in both places, and change $\dfrac{\partial^2 M}{\partial t_i \partial t_j}$ to $\dfrac{\partial^2 M}{\partial t_1 \partial t_2}$.

[8/16/2017] On page 379, in exercise 27.13, on the displayed line, put a negative sign in front of the first ∞ on the right.

[6/22/2017] On page 381, in exercise 27.21, on the first line, delete "independent".

[8/15/2017] On page 381, in the solution to exercise 27.1, on the second to last line of the page, delete the negative sign after the equals sign.

[8/16/2017] On page 391, on the second line of the answer to Example 28C, change $\sqrt{(}y)$ to $\sqrt{y}$. On the fourth line, change $|h_i(y)|$ to $|h_i'(y)|$.

[10/15/2017] On page 427, in question 10, on the third line, replace $p(x)$ with $p(n)$.

[5/8/2017] On page 429, in question 22, on the last line of the question, replace $1/2a^3$ with $2/a^3$. None of the answer choices is correct.

[9/19/2017] On page 452, in question 14, multiply the five answer choices by 0.1:

(A) 197.8 (B) 203.9 (C) 207.0 (D) 213.1 (E) 217.2

[5/19/2017] On page 461, in question 23, on the second line, insert $1/2$ before $e^{-x/2}$.

[9/16/2017] On page 470, in the solution to question 13, 6 lines and 4 lines from the end (once apiece), change $100\theta(2+\theta)$ to $100(2+\theta)$; delete θ.

[7/20/2017] On page 478, in the solution to question 8, on the first line of the page, the first sum should be from $n = 2$, not $n = 1$.

[6/25/2018] On page 480, in the solution to question 16, change answer key (C) to (B).

[5/8/2017] On page 481, replace the last line of the solution to question 22 with

$$= \frac{3}{7}\left(-\frac{1}{2^2} + \frac{1}{(2/3)^2} + \frac{4}{3}(2)\right) = \frac{3}{7}\left(\frac{14}{3}\right) = \boxed{\mathbf{2}}$$

[9/19/2017] On page 505, in the solution to question 6, on the line after "Set this equal to 2000", change $1000e^{0.25}$ to $1000^{0.25}u^{0.75}$.

[9/19/2017] On page 507, in the solution to question 14, replace the last three lines with

$$\begin{aligned}\mathbf{E}\left[1000\max\left(0, \frac{5-T}{5}\right)\right] &= 1000\int_0^5 0.1\left(\frac{5-t}{5}\right)e^{-t/10}\mathrm{d}t \\ &= 1000\left(\frac{5-t}{5}(-e^{-t/10})\Big|_0^5 - 0.2\int_0^5 e^{-t/10}\,\mathrm{d}t\right) \\ &= 1000\left(1-2(1-e^{-0.5})\right) = \boxed{\mathbf{213.06}} \qquad \textbf{(D)}\end{aligned}$$

[11/7/2017] On page 508, in the solution to question 20, on the fifth line, replace $\Pr(X > 0)$ with $\Pr(X = 0)$. On the seventh line, replace $\mathbf{E}[X^2]$ with $\mathbf{E}[X]^2$.

[9/27/2017] On page 515, replace the solution to question 11 with

We want the 60th percentile of correct answers to be 17.5, rather than 18, to take the continuity correction into account . The number of correct answers is binomial with parameters 30 and p. The mean is $30p$ and the variance is $30p(1-p)$. The 60th percentile of a standard normal distribution is 0.253.

$$\begin{aligned}30p + 0.253\sqrt{30p(1-p)} &= 17.5 \\ 0.253\sqrt{30p(1-p)} &= 17.5 - 30p \\ 1.92027p - 1.92027p^2 &= 900p^2 - 1050p + 306.25 \\ 901.92p^2 - 1051.92p + 306.25 &= 0\end{aligned}$$

$$p = \boxed{\mathbf{0.5604}}, 0.6059$$

0.6055 is spurious, since it works only with the negative square root of $30p(1-p)$. **(B)**

[5/22/2017] On page 521, in the solution to question 25, replace the last two lines with

$$= \frac{1000}{900} e^{-900/\mu} \Big|_{1000}^{\infty}$$
$$= \frac{10}{9}(1 - e^{-0.9}) = \boxed{\mathbf{0.6594}}$$