Errata for the ASM Study Manual for Exam P, 15-th Edition
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Effective July 5, 2013, only the latest edition of this manual will have its errata updated. You can find the errata for all latest editions of my books at: http://smartURL.it/errata

Posted July 3, 2013
In the end part of the solution to Problem 16 in Practice Examination 13, starting from the top of page 482, all references to random variable considered should be Y, **not** X.

Posted July 3, 2013
In Section 4, solution to Exercise 4.2, on page 98, in the middle of the page, in the third displayed formula, the displayed formula following the words
"The third condition gives benefit less than 5 when"
should be

$$Y<7,\ X\le 1,\ \text{and}\ Y>2.$$

instead of

$$Y<7, X>1, \text{and}\ Y\le 2.$$

Posted June 26, 2013
In the solution of Problem 4 in Practice Examination 8, the fourth item in the list of six events was mistyped as $\{X_1<X_2<X_3\}$, **while it should have been** $\{X_1<X_3<X_2\}$.

Posted April 5, 2013
The second to last formula in the solution of Problem 12 in Practice Examination 5 should be:

$$\Pr(X>1)=\int_1^2\int_0^{2-x}\frac{3}{4}x\,dy\,dx=\int_1^2\frac{3}{4}x(2-x)\,dx=\left(\frac{3}{4}x^2-\frac{1}{4}x^3\right)\Bigg|_{x=1}^{x=2}=(3-2)-\left(\frac{3}{4}-\frac{1}{4}\right)=\frac{1}{2}.$$

The calculation shown was correct but there was a typo in limits of integral calculation.

Posted April 2, 2013
The last formula in the solution of Problem 10 in Practice Examination 4 should be

$$E(Y)=\int_{0.6}^{2} x\cdot\left(\frac{2.5\cdot 0.6^{2.5}}{x^{3.5}}\right)dx+\int_{2}^{+\infty} 2\cdot\left(\frac{2.5\cdot 0.6^{2.5}}{x^{3.5}}\right)dx=\int_{0.6}^{2}\frac{2.5\cdot 0.6^{2.5}}{x^{2.5}}dx+\int_{2}^{+\infty}\frac{5\cdot 0.6^{2.5}}{x^{3.5}}dx=$$

$$=-\frac{2.5\cdot 0.6^{2.5}}{1.5x^{1.5}}\bigg|_{x=0.6}^{x=2}-\frac{2\cdot 0.6^{2.5}}{x^{2.5}}\bigg|_{x=2}^{x\to\infty}=-\frac{2.5\cdot 0.6^{2.5}}{1.5\cdot 2^{1.5}}+\frac{2.5\cdot 0.6}{1.5}-0+\frac{0.6^{2.5}}{2^{1.5}}\approx 0.934273.$$

The calculation shown was correct, but a factor in the numerator of the last fraction was mistyped as 2.5, when it should have been 2.

Posted March 6, 2013
In the solution of Problem 6 in Practice Examination 2, the expression
rectangle $[0,2]\times[0,3]$,
should be
rectangle $[0,1]\times[0,2]$,
This expression appears twice in the solution.

Posted August 16, 2012
In the solutions part of Practice Examination 8, Problem 18 is printed in place of Problem 8 (but Problem 8 is correctly printed in the problems part of the examination). The solution presented is, however, correct, and it is for Problem 8.

Posted August 13, 2012
In Problem 10, Practice Examination 17, the joint probability function given all calculated values, should be multiplied by $\frac{60}{7}$. The answer choices should be:

A. 0.4286 B. 0.2857 C. 0.9429 D. 0.8286 E. 0.5476

Posted June 16, 2012
In the solution of Problem 23, Practice Examination 12, the second method of solving the problem should be:
You can also ask yourself these two questions:
• What is the total number of possible outcomes? It is 2^n.
• What is the total number of favorable outcomes? It is equal to the number of possible ways to get the third head on the n-th toss, which is the number of ways to put two heads among the first $n-1$ tosses, i.e., $\binom{n-1}{2}$.

This gives the probability sought as

$$\frac{\binom{n-1}{2}}{2^n}=(n-1)\cdot(n-2)\cdot\left(\frac{1}{2}\right)^{n+1}.$$

Posted May 9, 2012
The solution of Problem 17 in Practice Examination 9 had several typos and was not clear. Here is an improved solution:

Let X be the random number of tosses till k successive heads occur. Note that if $X = n$, then $n \geq k$ and the last k tosses were heads, the one just before those k was not heads (i.e., it was tails), and there were no k consecutive heads on the $n-k-1$ rolls before that. Therefore,

$$\Pr(X=n) = \underbrace{\left(\frac{1}{2}\right)^k}_{\substack{\text{Heads on the}\\ \text{last } k \text{ tosses}}} \cdot \underbrace{\frac{1}{2}}_{\substack{\text{Tails on the toss}\\ \text{just before that}}} \cdot \underbrace{\Pr(X>n-k-1)}_{\substack{\text{No } k \text{ consecutive heads}\\ \text{on the first } n-k-1 \text{ tosses}}} = \left(\frac{1}{2}\right)^{k+1} \cdot \underbrace{\Pr(X \geq n-k)}_{=\Pr(X>n-k-1) \text{ because } X \text{ is discrete}}.$$

This is equivalent to the statement that for $n \geq k$,

$$\Pr(X \geq n-k) = 2^{k+1} \cdot \Pr(X=n).$$

We also have $X \geq k$ with probability 1 (and, notably, also $X \geq 0$ with probability 1, so that we can use the Darth Vader Rule) and

$$\Pr(X=k) = \left(\frac{1}{2}\right)^k = \frac{1}{2^k},$$

while

$$\Pr(X=k+1) = \underbrace{\frac{1}{2}}_{\text{Tails on first toss}} \cdot \underbrace{\left(\frac{1}{2}\right)^k}_{\text{Heads on 2nd, 3rd, ..., and } (k+1)\text{-st toss}} = \frac{1}{2^{k+1}},$$

$$\Pr(X=k+2) = \underbrace{1}_{\text{Anything on the first toss}} \cdot \underbrace{\frac{1}{2}}_{\text{Tails on second toss}} \cdot \underbrace{\left(\frac{1}{2}\right)^k}_{\text{Heads on 3rd, 4th, .., and } (k+2)\text{-nd toss}} = \frac{1}{2^{k+1}},$$

and the same way, as long as $1 \leq r \leq k$,

$$\Pr(X=k+r) = \underbrace{1 \cdot 1 \cdot \ldots \cdot}_{\text{Anything on first } r-1 \text{ tosses}} \underbrace{\frac{1}{2}}_{\text{Tails on } r-\text{th toss}} \cdot \underbrace{\left(\frac{1}{2}\right)^k}_{\text{Heads on } (r+1)\text{-st, .., and } (r+k)\text{-th toss}} = \frac{1}{2^{k+1}}.$$

The above gives us probabilities that X attains the values of $1, 2, 3, ..., k, k+1, ..., 2k,$ and beyond those values we can use the recursive formula we derived in the first step. Therefore,

$$E(X) = \sum_{n=1}^{+\infty} \Pr(X \geq n) = \sum_{n=1}^{k-1} \Pr(X \geq n) + \sum_{n=k}^{+\infty} \Pr(X \geq n) = \sum_{n=1}^{k-1} 1 + \sum_{n=k}^{+\infty} \Pr(X \geq n) =$$

$$= (k-1) + \sum_{n=2k}^{+\infty} \Pr(X \geq n-k) = (k-1) + \sum_{n=2k}^{+\infty} 2^{k+1} \cdot \Pr(X=n) =$$

$$= (k-1) + 2^{k+1} \cdot \sum_{n=2k}^{+\infty} \Pr(X=n) = (k-1) + 2^{k+1} \cdot \left(1 - \sum_{n=0}^{n=k-1} \underbrace{\Pr(X=n)}_{=0} - \sum_{n=k}^{n=2k-1} \Pr(X=n)\right) =$$

$$= (k-1) + 2^{k+1} \cdot \left(1 - \frac{1}{2^k} - \frac{1}{2^{k+1}} - \ldots - \frac{1}{2^{k+1}}\right) = (k-1) + 2^{k+1} \cdot \left(1 - \frac{1}{2^k} - \frac{k-1}{2^{k+1}}\right) = 2^{k+1} - 2.$$

Answer C.

Posted April 23, 2012
The fourth formula in the solution of Problem 4 in Practice Examination 7 should be:

$$M = \frac{2 \pm \sqrt{4 - 4 \cdot 0.0005 \cdot 1850}}{2 \cdot 0.0005} \approx \frac{2 \pm 0.5477226}{0.001} \approx \begin{cases} 2547.72, \\ 1452.28. \end{cases}$$

intead of

$$M = \frac{2 \pm \sqrt{4 - 4 \cdot 0.0005 \cdot 1850}}{0.0001} \approx \frac{2 \pm 0.5477226}{0.001} \approx \begin{cases} 2547.72, \\ 1452.28. \end{cases}$$

Posted April 20, 2012
The first formula in the last line of the solution of Problem 9 in Practice Examination 7 should be $2 \cdot \Pr(X \geq 800) \leq \frac{1}{4}$ **instead of** $2 \cdot \Pr(X \geq 800) \geq \frac{1}{4}$.

Posted January 24, 2012
In the solution of Problem 21 in Practice Examination 18, the expression

$$E(X - \min(X, 100))E$$

in the formula should be

$$E(X - \min(X, 100))$$

The extra E **is a typo.**