CRE Primer - errata
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9/26/2011 revised (added last item on this list, page 3)

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page VI-52

During useful life the reliability of a system or component is characterized by the exponential distribution. This distribution is unusual, in that the average and the standard deviation are the same value. The following identities apply:

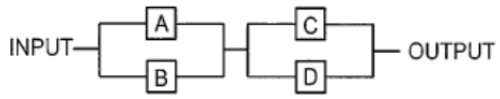
Exponential Distribution $f(t) = \left(e^{-\lambda t}\right) \cdot \lambda$

Mean of the Exponential Distribution = $\mu = \frac{1}{\lambda}$

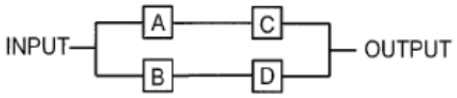
Solution Text, page 99:

should be:
Step 1 = P(success if E is good)* (PE is good) =

If E is good



If E is bad



Step 1 $= P_{(\text{success if E is bad})} P_{(\text{E is bad})}$

$= [(R_A + R_C - R_A R_C)(R_B + R_D - R_B R_D)]\ [0.60]$

$= [(0.8 + 0.8 - 0.64)(0.7 + 0.7 - 0.49)]\ [0.60]$

$= [(0.96)(0.91)]\ [0.60]$

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errata: Answer implies that II at bottom and III at right.

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p III-26
should be P(t<2) = … [not t<200]

Example 3.25: A random variable has the probability density function f(x) = 0.125x, where x is valid from 0 to 4. The probability of x being less than or equal to 2 is:

Solution: $P(t < 2) = \int_0^2 0.125x\,dx = \frac{0.125x^2}{2}\Big|_0^2 = 0.0625x^2\Big|_0^2 = 0.25$

2 not 200

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Example 3.41 (Continued): The probability of more than 2 successes is equal to one minus the probability of exactly zero successes minus the probability of exactly one success minus the probability of exactly two successes.

$$P(0,8,0.2) = \binom{8}{0} 0.2^0 (1-0.2)^{8-0} = 0.1678$$

typos:

$$P(1,8,0.2) = \binom{8}{1} 0.2^1 (1-0.2)^{8-1} = 0.3355$$

0.2^1

$$P(2,8,0.2) = \binom{8}{2} 0.2^2 (1-0.2)^{8-2} = 0.2936$$

0.2^2

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	-2.015	2.132
Step 3: Calculate the t statistic: $t = \frac{\bar{X} - \mu_0}{s/\sqrt{n}}$	$t = \frac{0.0050 - 0.0055}{0.00048/\sqrt{6}}$ $t = -2.551$	$t = \frac{0.054 - 0.050}{0.056/\sqrt{5}}$ $t = 1.597$
Step 4: Can one reject the null hypothesis?	Since the value of calculated t is to the left of -2.015, the null hypothesis is rejected. The wear is less for the new plug design.	Since the value of calculated t (1.597) is not to the right of the critical t (2.132), the null hypothesis can't be rejected. Insufficient evidence exists for the new technique to be profitable.

Table 4.5 A Matrix Review of Two Student's t Tests

$\frac{.54 - .50}{.056/\sqrt{5}}$

Primer - blue pages questions, Chapter III

3.10 should be 3.5
"multiplicative effects …"

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Example 9.1 (Continued): A manually calculated beta, can be determined from the following equations:

$$\beta = \frac{\Delta y}{\Delta x}$$

Where:

$$\Delta x = \ln(t_2) - \ln(t_1)$$

$$\Delta y = \ln \ln\left(\frac{1}{1 - F(t_2)}\right) - \ln \ln\left(\frac{1}{1 - F(t_1)}\right)$$

For our sample calculation of β, we will choose 2000 cycles and 6000 cycles. The

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