page 22, sol. 1.11: Loss Ratio = 67.00%.

$\Rightarrow$ Ratio of LAE to Earned Premium = (8.2%)(67.00%) = 5.5%.

Operating expense ratio = LAE / Earned Premium + UW Expense Ratio
= 5.5% + 27.5% = **33.0%**.

page 44, Q.2.9: should have specified that the expense fee is per automobile.

page 93, solution 4.2: should refer throughout to CY 2012 rather than CY 2011.

page 102, Solution 4.20: For a policy written during the first year at time x,
the portion earned during the first year is: **1 - x**.
(For example, if written at time 1/4, 3/4 is earned during the first year.)

Earned exposures the first year is: $\int_0^1 (1 - x)\, 1000x^2\, dx = 1000/12 =$ **83.3**.

page 127, under cancelations: An annual policy with $**6**00 in premium

pages 127-128, under endorsements: various places eliminate “car-years”

page 138, last paragraph: the numerator, losses, and the denominator, premiums

page 186, solution 5.4: The July 1, 2009 policies are all written at the lower rate level of 1.0.
Half of their premium is earned in CY2010
The July 1, 2010 policies are all written at the higher rate level of 1.2.
Half of their premium is earned in CY2010
The average rate level for 2010 Calendar Year Earned Premiums is:
(30%)(1) + (5%)(1) + (5%)(1.2) + (60%)(1.0340) = **1.0304**.
Therefore, the on-level factor is: 1.2/1.0304 = 1.165.

page 298, Q. 6.2: switch the column headings for ULAE and Loss & ALAE

page 357, solution 6.70 d:
4. For some lines of insurance, salvage and/or subrogation can reduce the net amount paid

page 470, first sentence: an annual severity trend of 0.5% is selected for the historical period

page 559, solution 8.26: Trended average fixed expenses: (1.03^2) (640,000) / 50,000 = **13.58**.

Indicated average premium is: $\frac{90.57 + 13.58}{1 - 10\% - 3\% - 5\%} = 127.01$.

Indicated Rate Change is: 127.01 / 114.33 - 1 = **11.1%**.

page 586, sol. 8.66b:
2010 CY developed to ultimate: (1.150)(1.100)(1.010) ($76.094 million) = $**97.221** million.
The projected ultimate incurred loss and alae for calendar year 2010 is:
(1.022^2)($97.221 million) = $101.546 million.
Loss ratio for CY 2010 is: 101.546 / 134.864 = 75.29%.
Select the average of the two loss ratios: 71.41%. (Other choices are reasonable.)
Indicated rate change is: $\frac{(71.41\%)(1.032) + 5.6\%}{1 - 24.0\% - 3.5\%} - 1 =$ **9.4%**.

page 605: I left out of the latest year of exposures by class and territory:

Territory	Class 1	Class 2	Class 3
1	9,366	4,551	1,870
2	14,284	5,939	4,669
3	5,961	2,591	3,036

Page 649, solution 9.16 b: The weighted average relativity for Territory B is 1.16, as calculated above the spreadsheet. However, 1.18 was mistakenly entered into the spreadsheet.

[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Class	Earned	Weighted	Adjusted	Loss	Indicated	Indicated	Indicated
	Exposures	Average	Exposures	& ALAE	Pure	Relativity	Relativity
		Relativity			Premium		to B
			=[2]*[3]	($ million)		= [6] / Total [6]	= [7] / B
A	50,000	1.640	82,000	17.5	$213	1.2449	**1.9043**
B	50,000	**1.160**	58,000	6.5	$112	0.6537	1.0000
Total	100,000		140,000	24	$171		

page 699: The loglikelihood is the sum of the contributions from the three observations:

$(\alpha-1)\{\ln(1) + \ln(2) + \ln(\mathbf{9})\} - \alpha\{1/(\beta_0 + \beta_1) + 2/(\beta_0 + 2\beta_1) + 9/(\beta_0 + 3\beta_1)\}$

$- \alpha\{\ln(\beta_0 + \beta_1) + \ln(\beta_0 + 2\beta_1) + \ln(\beta_0 + 3\beta_1)\} + 3\alpha\ln(\alpha) - 3\ln[\Gamma(\alpha)]$.

page 745, Q. 10.36: and four times a year in **blue**

page 762, sol. 10.13. Relativities should have been weighted by exposures rather than claims.
c) The average age relativity for Large Cars is: {(200)(2) + (2000)(1)} / 2200 = 1.091.
The adjusted frequency for Large cars is: (240/2200)/1.091 = 10.00%.
The average age relativity for Small Cars is: {(800)(2) + (1000)(1)} / 1800 = 1.444.
The adjusted frequency for Small cars is: (320/1800)/1.444 = 12.31%.
The relativity for Small cars is: 12.31%/10.00% = **1.23**.
d) The average size relativity for Age Group 1 is: {(200)(1) + (800)(1.5)} / 1000 = 1.400.
The adjusted frequency for Age Group 1 is: (240/1000)/1.400 = 17.14%.
The average size relativity for Age Group 2 is: {(2000)(1) + (1000)(1.5)} / 3000 = 1.167.
The adjusted frequency for Age Group 2 is: (320/3000)/1.167 = 9.14%.
The relativity for Age Group 1 is: 17.14%/9.14% = **1.88**.

page 804, In the first exercise: LAS[250,000] = 106,000.

page 804, In the second exercise: LAS[500,000] = $40,000.

page 807: $\text{LER}[500] = \frac{300{,}000 + 350{,}000 + 280{,}000 + (500)(320 + 180)}{2{,}000{,}000} = 59.00\%$.

page 816, solution to exercise:

$(35)(1350 + 0.1\,x) = (877.5)(50 + 0.04x) \Rightarrow x = \$\mathbf{106.80}$.

page 907, solution 11.27: LAS($100,000) - LAS($50,000) =

$$\frac{1{,}105{,}000 - (18)(50{,}000) + 1{,}430{,}000 - (23)(50{,}000) + (8)(50{,}000)}{60 + 89} = \$5940$$

In order to estimate LAS($250,000) - LAS($100,000), we only use data from policies with limit of at least $250,000.
The losses of size less than $100,000 contribute nothing to this layer.
The losses of size 100,000 to 250,000 contribute their value minus 100,000 to the layer.

$$\text{LAS}(\$250{,}000) - \text{LAS}(\$100{,}000) = \frac{1{,}112{,}000 - (8)(100{,}000)}{89} = \$3506.$$

Thus we estimate LAS($250,0000) as: $34,341 + $5940 + $3506 = $43,787.
ILF($250,000) = LAS($250,0000) / LAS($50,000) = $43,787/ $34,341 = **1.275**.
Alternately, ILF($250,000) = 1 + (5940 + 3506) / 34,341 = **1.275**.

pages 949-950: solutions 11.131 and 11.132 are reversed.

page 1077, Q. 14.12: premium is $**8.97** million.

page 1089, solution 14.7: the comment should refer to Table 14.**8**.

page 1095, solution 14.14: Adjust to a per policy basis: ($41.65)(1.3982) = **$58.24**.

page 1112, at top: Expected Losses = $\sum$(class payroll/100) (class expected loss rate).

page 1332, footnote 1217: See rule 5.

page 1333, footnote 1219: See rule 3.E.

page 1344, sol. 20.3: PDL Premium is: ($179)(1.2 + 0) + $15 = **$230**.
Premium for the policy is: 197 + 230 = $427.

page 1345, sol. 20.5: Based on rule 5.D. the safe driver points are summed across the operators and apply to both vehicles. Thus both cars get a secondary addition of 0.5.
For Joanne, the primary factor is 0.7, and the secondary addition is **0.5**.
The BI premium is: ($108)(0.7 + 0.5)(1.28)(0.95)(0.95) + $10 = $160.
The PDL premium is: ($179)(0.7 + 0.5)(1.05)(0.95)(0.95) + $15 = $219.
The Collision deductible factor is 1. The Collision Model Year Symbol Factor is 1.06.
The Collision premium is: ($221)(0.7 + 0.5)(1.06)(0.95) + $10 = $277.
The Comprehensive deductible factor is 1.
The Comprehensive Model Year Symbol Factor is 0.98.
The passive device gives a 15% discount.
The Comprehensive premium is: ($90)(0.7 + 0.5)(0.98)(0.85)(0.95) + $5 = $90.
Premium for the policy is:
160 + 219 + 239 + 79 + 160 + 219 + 277 + 90 = **$1443**.

page 1353: "Fixed" expense trend = **2**% per annum.

page 1363, Q. 21.15: Fixed Expenses increase **4%** at each renewal.

page 1380, solution 21.4: The first year expenses should be: (30%)($1600) = $480, changing the final solution to 3.48%.

Year	Premium	PV Loss	Expenses	Persistency	Cumulative Persistency	Profit
1	1600.00	1300.00	480.00	1	1.00000	-180.00
2	1600.00	1235.00	160.00	0.6	0.60000	123.00
3	1600.00	1173.25	160.00	0.65	0.39000	104.03
4	1600.00	1114.59	160.00	0.7	0.27300	88.84
5	1600.00	1058.86	160.00	0.75	0.20475	78.04

Year	Profit	Discount Factor	PV Profit	PV Premium		
1	-180.00	1.00000	-180.00	1600.00		
2	123.00	1.13000	108.85	849.56		
3	104.03	1.27690	81.47	488.68		
4	88.84	1.44290	61.57	302.72		
5	78.04	1.63047	47.86	200.92		
Total			**119.75**	**3441.89**	**3.48%**	

Slides, Sec. 21, p.17: "Fixed" expense trend = **2**% per annum.