ERRATA
SOLUTIONS TO
INTRODUCTION TO RATEMAKING AND LOSS RESERVING
FOR PROPERTY AND CASUALTY INSURANCE
Third Edition

Page 51, Exercise 5.12

The solutions should be:

(b) Since Expense ratio is 30%. Maximum loss ratio before reinsurance is 70% (100% - 30%). It wants to protect itself against eh 20% probability of an $8M loss year.

Expected Losses before reinsurance:

	$5M	x 20%	=	$1.0M
	6M	x 20%	=	1.2
	7M	x 40%	=	2.8
	8M	x 20%	=	1.6
Total			=	$6.6M

Since the Losses ($6.6M) + Expenses ($3.0M) = $9.6M, $400,000 is left to buy reinsurance. $400,00 of reinsurance premium would reduce its net premium to $9,600,000.

If Value reinsures to stop-loss at 70% then instead of $7M losses (70% loss ratio) 40% of the time, it's net losses will be $7M 60% of the time (40% + 20%) since the reinsurer will pay the excess over $7M

	$5M	x 20%	=	$1.0M
	6M	x 20%	=	1.2
	7M	x 60%	=	4.2
Total			=	$6.4M

Therefore

(c) The loss ratio before reinsurance is:

$6,600,000 / $10,000,000 = 66.0%

And after reinsurance is

$6,400,000/ ($10,000,000 - $400,000) = 66.7%

(d) The reinsurer has a 20% probability of paying $1,000,000 ($8M - $7M), so its expected losses are $200,000 and its expected loss ratio is (assuming Value pays its maximum reinsurance premium):

$200,000 / $400,000 = 50.0%

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