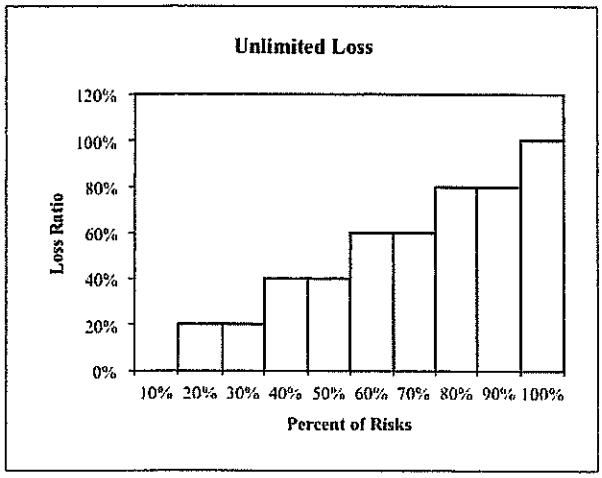
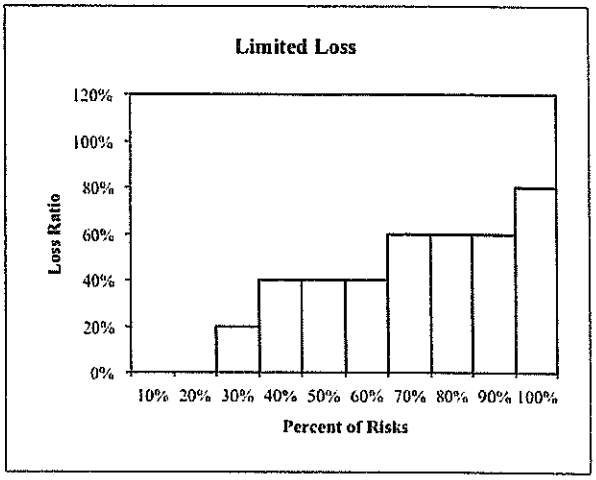
12. (3 points)

The following Lee diagrams depict the loss experience of a group of 10 similar risks; one for unlimited losses and the other for limited losses.





a. (2.25 points)

Calculate the Table L charges at loss ratios of 0% to 100% in 20% increments.

b. (0.75 point)

Describe what the Table L savings at an entry ratio of 0.4 reflects, assuming an expected unlimited loss of $500,000 and a per accident limit of $100,000.

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EXAM 8 FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION 12

TOTAL POINT VALUE: 3 points **LEARNING OBJECTIVE: B2**

SAMPLE ANSWERS

Part a: 2.25 points

Sample 1

Exp LR for unlimited = 0.2 x 0.2 + 0.2 x 0.4 +0.2 x 0.6 +0.2 x 0.8 +0.1 x 1 = 0.5
Exp LR for limited = 0.1 x 0.2 + 0.3 x 0.4 +0.3 x 0.6 +0.1 x 0.8 = 0.4

LER = 1- (0.4 / 0.5) = 0.2

Loss Ratio	r (limited LR /unlimited LR)	# risks (limited)	% risks above	Table L Charge
0%	0	2	0.8	0.68+0.8 x (0.4)=1
20%	0.2/0.5 = 0.4	1	0.7	0.4+0.7 x (0.4)=0.68
40%	0.4/0.5 = 0.8	3	0.4	0.24+0.4 x (0.4)=0.4
60%	1.2	3	0.1	0.2+0.1 x (1.6-1.2)=0.24
80%	1.6	1	0	0.2+0 x (2-1.6)=0.2
100%	2	0	0	LER = 0.2

Sample 2

E[x] = .5
E[x`] = .4
k = 1 – (E[x`] / E[x]) = 1 – (.4/.5) = .2

Loss Ratio	# at LR	# Over	Double Sum	Partial Charge (n)	$\phi^* = (n)(1-k) + k$
0	2	8	20	1 = 20/20	1
20	1	7	12	.6 = 12/20	.68
40	3	4	5	.25 = 5/20	.4
60	3	1	1	.05 = 1/20	.24
80	1	0	0	0 = 0/20	.2
100	0	0	0	0	.2

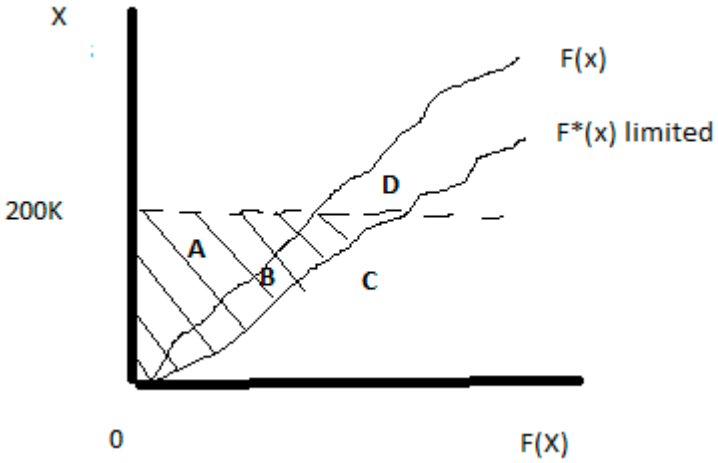
EXAM 8 FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

Part b: 0.75 point

Sample 1

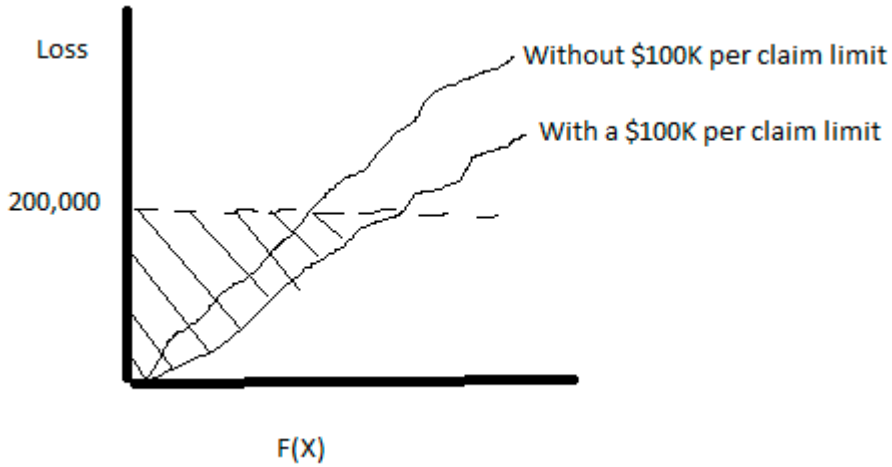
R = .4 E=500,000 per acc = 100K

Entry ratio at .4 corresponds to a hypothetical aggregate limit of 200k (E of 500k x .4). This aggregate limit is on limited losses, limited by the 100k per accident limit. The savings at the entry ratio of .4 is describing the amount by which 200,000 on average exceeds the occurrence limited losses (or A+B below)



Sample 2

R x E = 0.4 x 500000 = 200000
Table L savings at r=0.4 and E=500,000, per-acc limit = 100000 is the average amount below 200,000 but above the limited loss curve.



It is represented as the shaded area in the diagram.

EXAM 8 FALL 2014 SAMPLE ANSWERS AND EXAMINER'S REPORT

EXAMINER'S REPORT

General Commentary

Candidates generally did very well on part a, but for part b their explanations of the savings was much poorer than expected. They struggled to describe in words what the Table L savings represents.

Part a

- Candidates were expected to know how to calculate Table L charges when given limited and unlimited loss ratios.
- Candidates were expected to calculate Table L charges for loss ratios requested.
- When using the % of risks above method, candidates often divided by 8 instead of 10 to get the percentage of risks above the given loss ratio. When calculation errors occurred and their charge at 0 was not equal to 1, the candidate was expected to know to normalize the Table L charges. Some candidates calculated the LER as the difference between the unlimited and limited loss ratios.
- Generally candidates either received full credit on this question or they received very few points. Most candidates performed well on this question.

Part b

- Candidates were expected to know what the Table L savings means and express it in words.
- Candidates needed to express that the savings is the average difference between the loss amount corresponding to the entry ratio of 0.4 (200,000) and the actual losses limited to the per occurrence limit of 100,000.
- Candidates often didn't accurately describe what the savings actually are and tried to use Table L buzz words to get partial credit.
- Many candidates calculated the savings based on their part a results, while the question never indicated that the scenario in b applied to the data in a.
- Very few candidates received full credit on this part.
- We gave partial credit when candidates calculated the correct savings amount based on their work from part a. We also gave partial credit when they drew a correctly labeled graph that displayed the Table L savings area.