Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Increased Limits Analysis

Find Find the complement of credibility in indicated layer using Increased Limits Analysis.

Given layer: 250,000 to 1,000,000

losses on policies capped at: 250,000 is 500,000

increased limits factors:

limit	ILF
50,000	1.00
100,000	1.50
250,000	1.75
500,000	2.50
1,000,000	3.50
2,000,000	4.25

Step 1 just apply the formula to find the complement of credibility C

A	=	250,000	<====	Attachment point
A + L	=	1,000,000	<====	Attachment point + Limit of insurer's liability
ILF(A)	=	1.75	<====	lookup on ILF table
ILF(A+L)	=	3.50	<====	lookup on ILF table

now just apply the formula

C	=	cap	/	ILF(A)	x	(	ILF(A+L)	-	ILF(A)	)
	=	500,000	/	1.75	x	(	3.50	-	1.75	)
	=	500,000								

Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Increased Limits Analysis

Find Find the complement of credibility in indicated layer using Increased Limits Analysis.

Given layer: 100,000 to 500,000

losses on policies capped at: 100,000 is 300,000

increased limits factors:

limit	ILF
50,000	1.00
100,000	1.75
250,000	2.50
500,000	3.00
1,000,000	3.50
2,000,000	4.00

Step 1 just apply the formula to find the complement of credibility C

A	=	100,000	<====	Attachment point
A + L	=	500,000	<====	Attachment point + Limit of insurer's liability
ILF(A)	=	1.75	<====	lookup on ILF table
ILF(A+L)	=	3.00	<====	lookup on ILF table

now just apply the formula

C	=	cap	/	ILF(A)	x	(	ILF(A+L)	-	ILF(A)	)
	=	300,000	/	1.75	x	(	3.00	-	1.75	)
	=	214,286								

Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Lower Limits Analysis - Complements for Excess Ratemating

Find Find the complement of credibility in indicated layer using Lower Limits Analysis.

Given

layer: 250,000 to 1,000,000

losses on policies capped at: 50,000 is 100,000

increased limits factors:

limit	ILF
50,000	1.20
100,000	1.70
250,000	1.95
500,000	2.20
1,000,000	3.20
2,000,000	3.95

Step 1 just apply the formula to find the complement of credibility C

d	=	50,000	<====	lower limit
A	=	250,000	<====	Attachment point
A + L	=	1,000,000	<====	Attachment point + Limit of insurer's liability
ILF(d)	=	1.20	<====	lookup on ILF table
ILF(A)	=	1.95	<====	lookup on ILF table
ILF(A+L)	=	3.20	<====	lookup on ILF table

now just apply the formula

C	=	cap	/	ILF(d)	x	(	ILF(A+L)	-	ILF(A)	)
	=	100,000	/	1.20	x	(	3.20	-	1.95	)
	=	104,167								

Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Lower Limits Analysis - Complements for Excess Ratemating

Find Find the complement of credibility in indicated layer using Lower Limits Analysis.

Given layer: 100,000 to 2,000,000

losses on policies capped at: 50,000 is 150,000

increased limits factors:

limit	ILF
50,000	1.10
100,000	1.35
250,000	1.85
500,000	2.10
1,000,000	2.85
2,000,000	3.60

Step 1 just apply the formula to find the complement of credibility C

d	=	50,000	<====	lower limit
A	=	100,000	<====	Attachment point
A + L	=	2,000,000	<====	Attachment point + Limit of insurer's liability
ILF(d)	=	1.10	<====	lookup on ILF table
ILF(A)	=	1.35	<====	lookup on ILF table
ILF(A+L)	=	3.60	<====	lookup on ILF table

now just apply the formula

C	=	cap	/	ILF(d)	x	(	ILF(A+L)	-	ILF(A)	)
	=	150,000	/	1.10	x	(	3.60	-	1.35	)
	=	306,818								

Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Lower Limits Analysis - Complements for Excess Ratemating

Find Find the complement of credibility in indicated layer using **Limits Analysis**.

Given

layer: 250,000 to 500,000

estimated all limits LR: 68%

increased limits factors:

limit (d)	premium	ILF
50,000	1,000,000	1.00
100,000	700,000	1.50
250,000	600,000	2.25
500,000	300,000	3.00
1,000,000	300,000	4.00

Step 1 let's get everything organized so that step 2 is easy

d	=	*cycles over all values greater than or equal to A*		
A	=	250,000	<====	Attachment point
A + L	=	500,000	<====	Attachment point + Limit of insurer's liability
ILF(d)	=	*depends on which row we're on in the table*		
ILF(A)	=	2.25	<====	lookup on ILF table
ILF(A+L)	=	3.00	<====	lookup on ILF table

Step 2 set up the table to do the calculations

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
d	A + L	min(d,A+L)	*expected total losses*	ILF for min(d,A+L)	ILF(A)	ILF(d)	*% loss in layer*	*expected loss in layer*
50,000	500,000	50,000	680,000	1.00	2.25	1.00	0.00%	0
100,000	500,000	100,000	476,000	1.50	2.25	1.50	0.00%	0
250,000	500,000	250,000	408,000	2.25	2.25	2.25	0.00%	0
500,000	500,000	500,000	204,000	3.00	2.25	3.00	25.00%	51,000
1,000,000	500,000	500,000	204,000	3.00	2.25	4.00	18.75%	38,250
								89,250

(4) = (premium for each limit d) x (estimated all limits LR) *(final answer)*

(8) = MAX [0 , [(5)-(6)] / (7)]

(9) = (4) x (8)

Note: *You can probably do this calculation with fewer columns in the table. Alice wrote out all the intermediate steps because it's just too easy to mess this up.*
Slowly and correctly beats rapidly and stupidly. :-)

Reading: Werner 12: Credibility
Model: Text Example
Problem Type: Lower Limits Analysis - Complements for Excess Ratemating

Find Find the complement of credibility in indicated layer using **Limits Analysis**.

Given

layer: 50,000 to 100,000

estimated all limits LR: 79%

increased limits factors:

limit (d)	premium	ILF
50,000	1,400,000	1.00
100,000	600,000	1.50
250,000	500,000	2.00
500,000	400,000	2.50
1,000,000	300,000	3.25

Step 1 let's get everything organized so that step 2 is easy

d	=	*cycles over all values greater than or equal to A*		
A	=	50,000	<====	Attachment point
A + L	=	100,000	<====	Attachment point + Limit of insurer's liability
ILF(d)	=	*depends on which row we're on in the table*		
ILF(A)	=	1.00	<====	lookup on ILF table
ILF(A+L)	=	1.50	<====	lookup on ILF table

Step 2 set up the table to do the calculations

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
d	A + L	min(d,A+L)	*expected total losses*	ILF for min(d,A+L)	ILF(A)	ILF(d)	*% loss in layer*	*expected loss in layer*
50,000	100,000	50,000	1,106,000	1.00	1.00	1.00	0.00%	0
100,000	100,000	100,000	474,000	1.50	1.00	1.50	33.33%	158,000
250,000	100,000	100,000	395,000	1.50	1.00	2.00	25.00%	98,750
500,000	100,000	100,000	316,000	1.50	1.00	2.50	20.00%	63,200
1,000,000	100,000	100,000	237,000	1.50	1.00	3.25	15.38%	36,462
								356,412

(4) = (premium for each limit d) x (estimated all limits LR) *(final answer)*

(8) = MAX [0 , [(5)-(6)] / (7)]

(9) = (4) x (8)

Note: *You can probably do this calculation with fewer columns in the table. Alice wrote out all the intermediate steps because it's just too easy to mess this up.*
Slowly and correctly beats rapidly and stupidly. :-)