Reading: Friedland 12 (Case Outstanding Methods)
Model: 2019.Fall #18
Problem Type: Reserving Methods - COS (Case O/S Method #1)

Find: Use a Case O/S method to calculate the unpaid for AY 2025
Data Set: *Book of Triangles Scenario 0: stable data*

Given:

	Cumulative Paid Loss ($000s) **(CPL)**			
AY	12	24	36	48
2022	720	1,800	2,880	3,600
2023	720	1,800	2,880	
2024	720	1,800		
2025	720			

	Case Outstanding ($000s) **(COS)**			
AY	12	24	36	48
2022	1,440	1,080	720	360
2023	1,440	1,080	720	
2024	1,440	1,080		
2025	1,440			

48-ultimate paid loss to prior case O/S factor	1.00

** no development past 60 months*

Step 1 calculate IPL (Incremental Paid Loss) (Solution 1)

AY	Incremental Paid Loss ($000s) (IPL) 12	24	36	48
2022	720	1,080	1,080	720
2023	720	1,080	1,080	
2024	720	1,080		
2025	720			

Sometimes you're given the incremental paid loss.
If so, then step 1 is not necessary.

Step 2a calculate & make selections for: (current case) / (prior case)

AY	Current/Prior COS 24/12	36/24	48/36	60/48
2022	0.750	0.667	0.500	
2023	0.750	0.667		
2024	0.750			
2025	**0.750**	**0.667**	**0.500**	**0.000**

Demonstration for AY 2022 calculations:

			current case O/S		prior case O/S
24/12	0.750	=	1,080	/	1,440
36/24	0.667	=	720	/	1,080
48/36	0.500	=	360	/	720

<-- default selection = all period average

Step 2b project case O/S using selections from step 2a

AY	projected Case Outstanding (COS) 12	24	36	48
2022				360
2023			720	360
2024		1,080	720	360
2025	1,440	1,080	720	360

Demonstration for AY 2025 projections:

	projection		selection		prior case O/S
24 mths	1,080	=	**0.750**	x	1,440
36 mths	720	=	**0.667**	x	1,080
48 mths	360	=	**0.500**	x	720

Step 3a calculate & make selections for: (current IPL) / (prior case)

AY	IPL / (prior case) 24/12	36/24	48/36	60/48
2022	0.750	1.000	1.000	
2023	0.750	1.000		
2024	0.750			
2025	**0.750**	**1.000**	**1.000**	

Demonstration for AY 2022 calculations:

			current IPL		prior case O/S
24/12	0.750	=	1,080	/	1,440
36/24	1.000	=	1,080	/	1,080
48/36	1.000	=	720	/	720

<-- default selection = all period average

Step 3b project IPL using selections from step 3a

AY	projected Incremental Paid Loss (IPL) 12	24	36	48	60
2022					360
2023				720	360
2024			1,080	720	360
2025		1,080	1,080	720	360

Demonstration for AY 2025 projections:

	projection		selection *		prior case O/S
24 mths	1,080	=	**0.750**	x	1,440
36 mths	1,080	=	**1.000**	x	1,080
48 mths	720	=	**1.000**	x	720
60 mths	360	=	1.000	x	360

Note: *The IPL projection always has 1 extra column. In this case 60-months. We use the 48-month case O/S to project the IPL out to 60 months.*

** The 60-mth selection was given info. (It was not selected in step 3a)*

Final calculate ultimate & unpaid amounts:

unpaid = sum of rows in step 3b
ultimate = sum of rows in step 3b + last diagonal of **CPL**

AY	ultimate	unpaid
2022	3,960	360
2023	3,960	1,080
2024	3,960	2,160
2025	3,960	3,240

Pay attention to whether the question asks for ultimate or unpaid.
Also, pay attention to which AY is being asked about.

The final unpaid for AY 2025 is 3,240 *<-- final answer*

Reading: Friedland 12 (Case Outstanding Methods)
Model: 2019.Fall #18
Problem Type: Reserving Methods - COS (Case O/S Method #1)

Find: Use a Case O/S method to calculate the ultimate for AY 2024
Data Set: *Random*

Given:

	Cumulative Paid Loss ($000s) **(CPL)**			
AY	12	24	36	48
2022	100	175	245	295
2023	125	205	305	
2024	175	285		
2025	225			

	Case Outstanding ($000s) **(COS)**			
AY	12	24	36	48
2022	200	150	75	25
2023	300	250	150	
2024	350	275		
2025	400			

48-ultimate paid loss to prior case O/S factor	1.25

** no development past 60 months*

Step 1 calculate IPL (Incremental Paid Loss) (Solution 2)

AY	Incremental Paid Loss ($000s) (IPL) 12	24	36	48
2022	100	75	70	50
2023	125	80	100	
2024	175	110		
2025	225			

Sometimes you're given the incremental paid loss.
If so, then step 1 is not necessary.

Step 2a calculate & make selections for: (current case) / (prior case)

AY	Current/Prior COS 24/12	36/24	48/36	60/48
2022	0.750	0.500	0.333	
2023	0.833	0.600		
2024	0.786			
2025	**0.790**	**0.550**	**0.333**	**0.000**

Demonstration for AY 2022 calculations:

			current case O/S		prior case O/S
24/12	0.750	=	150	/	200
36/24	0.500	=	75	/	150
48/36	0.333	=	25	/	75

<-- default selection = all period average

Step 2b project case O/S using selections from step 2a

AY	projected Case Outstanding (COS) 12	24	36	48
2022				25
2023			150	50
2024		275	151	50
2025	400	316	174	58

Demonstration for AY 2025 projections:

	projection		selection		prior case O/S
24 mths	316	=	**0.790**	x	400
36 mths	174	=	**0.550**	x	316
48 mths	58	=	**0.333**	x	174

Step 3a calculate & make selections for: (current IPL) / (prior case)

AY	IPL / (prior case) 24/12	36/24	48/36	60/48
2022	0.375	0.467	0.667	
2023	0.267	0.400		
2024	0.314			
2025	**0.319**	**0.433**	**0.667**	

Demonstration for AY 2022 calculations:

			current IPL		prior case O/S
24/12	0.375	=	75	/	200
36/24	0.467	=	70	/	150
48/36	0.667	=	50	/	75

<-- default selection = all period average

Step 3b project IPL using selections from step 3a

AY	projected Incremental Paid Loss (IPL) 12	24	36	48	60
2022					31.3
2023				100.1	62.4
2024			119.1	100.7	62.5
2025		127.6	136.8	116.1	72.5

Demonstration for AY 2025 projections:

	projection		selection *		prior case O/S
24 mths	128	=	**0.319**	x	400
36 mths	137	=	**0.433**	x	316
48 mths	116	=	**0.667**	x	174
60 mths	73	=	1.250	x	58

Note: *The IPL projection always has 1 extra column. In this case 60-months. We use the 48-month case O/S to project the IPL out to 60 months.*

** The 60-mth selection was given info . (It was not selected in step 3a)*

Final calculate ultimate & unpaid amounts:

unpaid = sum of rows in step 3b
ultimate = sum of rows in step 3b + last diagonal of **CPL**

AY	ultimate	unpaid
2022	326.3	31.3
2023	467.5	162.5
2024	567.3	282.3
2025	678.0	453.0

Pay attention to whether the question asks for ultimate or unpaid.
Also, pay attention to which AY is being asked about.

The final ultimate for AY 2024 is 567 *<-- final answer*