Reading: Odomirok.18-IEE (IEE allocation - practice 01) a-Question
Model: 2015.Fall #13
Problem Type: Allocation of surplus to line of business

Given

All LOBs	notation	prior CY	current CY
policyholders' surplus	S	12,000	15,400
net loss & LAE reserve	L + LAE	15,700	17,700
net UEP reserve	UEP	4,000	4,800
net EP	NEP	12,720	13,990

Commercial Auto	notation	prior CY	current CY
net loss & LAE reserve	$(L + LAE)_C$	1,800	2,290
net UEP reserve	UEP_C	2,880	3,740
net EP	NEP_C	5,760	6,280

Find calculate the surplus allocation to commercial auto for the current CY

Let m(x)	=	mean value of (prior CY value of x , current CY value of x)

Step 1: calculate the Surplus Ratio (SR) using the **All Lines** data

SR	=	m(S) / [m(L) + m(LAE) + m(UEP) + NEP_{CY}]								
where:										
m(S)	=	(	12,000	+	15,400	)	/	2	=	13,700
m(L+LAE)	=	(	15,700	+	17,700	)	/	2	=	16,700
m(UEP)	=	(	4,000	+	4,800	)	/	2	=	4,400
NEP_{CY}	=	13,990								
then:										
SR	=	13,700	/	35,090	=	39.04%				

Step 2: use the Surplus Ratio calculated in Step 1 to allocate the 'All Lines' surplus to **commercial auto** for the current year

$S_{C(CY)}$	=	SR x [$m(L_C)$ + $m(LAE_C)$ + $m(UEP_C)$ + $NEP_{C(CY)}$]								
where:										
$m(L_C + LAE_C)$	=	(	1,800	+	2,290	)	/	2	=	2,045
$m(UEP_C)$	=	(	2,880	+	3,740	)	/	2	=	3,310
$NEP_{C(CY)}$	=	6,280								
then:										
$S_{C(CY)}$	=	39.04%	x	11,635	=	4,542	*<== final answer*			