Reading: Odomirok.18-IEE (IEE allocation - 2015.Fall Q13) 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	15,200	18,500
net loss & LAE reserve	L + LAE	31,200	36,700
net UEP reserve	UEP	7,600	9,000
net EP	NEP	16,700	20,000

Commercial Auto	notation	prior CY	current CY
net loss & LAE reserve	$(L + LAE)_C$	2,000	2,300
net UEP reserve	UEP_C	3,400	3,700
net EP	NEP_C	6,200	6,600

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)	=	(	15,200	+	18,500	)	/	2	=	16,850
m(L+LAE)	=	(	31,200	+	36,700	)	/	2	=	33,950
m(UEP)	=	(	7,600	+	9,000	)	/	2	=	8,300
NEP_{CY}	=	20,000								

then:

SR	=	16,850	/	62,250	=	27.07%

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:

$m(L_C + LAE_C)$	=	(	2,000	+	2,300	)	/	2	=	2,150
$m(UEP_C)$	=	(	3,400	+	3,700	)	/	2	=	3,550
$NEP_{C(CY)}$	=	6,600								

then:

$S_{C(CY)}$	=	27.07%	x	12,300	=	3,330	*<== final answer*