23. (2 points)

An actuary calculated the aggregate loss for a policy using the following:

Expected total loss	$250,000
Deductible	$100,000
Percentage of total loss excess of $100,000	40%
Aggregate limit	$300,000

The following table provides insurance charges contemplating the indicated deductibles:

	Deductible			
Entry Ratio	$100,000	$200,000	$300,000	$400,000
1.0	0.430	0.460	0.475	0.487
1.5	0.280	0.330	0.350	0.360
2.0	0.170	0.235	0.260	0.275
2.5	0.105	0.165	0.195	0.205
3.0	0.065	0.115	0.150	0.170

The actuary later learns that the expected total loss should have been $333,000.

Calculate the dollar difference between the correct expected insurance charge and the insurance charge that was used to price the policy.

CONTINUED ON NEXT PAGE

Question 23

Sample 1

Limited Losses = 250,000 x (1 - .4) = 150,000
R = 300 / 150 = 2, Lookup charge = .170
Total charge = .170 (150,000) = $25,500

If 333,000, but ELPPF still 40%
Limited Loss = 333,000 x (1 - .4) = 199,800
R = 300,000 / 199,800 = 1.50, charge = .280
Charge = .280 (199,800) = $55,944

Difference = 55,944 – 25,500 = $30,444

Sample 2

Exp lim loss = 250K x (1 - .4) = 150K
R = 300 / 150 = 2
Lookup 100, 2
First way = .170 x 150K = 25500

Exp lim loss = 333K x (1 - .4) = 200K
R = 300 / 200 = 1.5
Lookup
Second way = .28 x 200K = 56000

Diff = 56000 – 25500 = 30500