

EXAM 5, FALL 2015

1. (2.75 points)

Given the following information:

Effective Date	Number of Autos Written on Effective Date
February 1, 2013	1,100
August 1, 2013	800
February 1, 2014	600
August 1, 2014	300

- All policies have six-month terms.
- The exposure base is earned car years.
- The premium per auto is \$500 per six-month term for policies effective through August 31, 2014.
- A uniform rate change of -18% became effective September 1, 2014.

a. (0.75 point)


Calculate the written and earned exposures for calendar year 2014.

b. (2 points)

Calculate the earned premium at current rate level for calendar year 2014 using both the parallelogram method and extension of exposures method, and discuss which method is more appropriate for this situation.

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EXAM 5 SAMPLE ANSWERS AND EXAMINER'S REPORT

QUESTION: 1	
TOTAL POINT VALUE: 2.75	LEARNING OBJECTIVE: A3
SAMPLE ANSWERS	
Part a: 0.75 point	
<p>Written CY 2014=$(600+300)(.5)=450$</p> <p>Earned CY 2014=$1/6(800)(.5)+600(.5)+5/6(300)(.5)=491.67$</p>	
Part b: 2 points	
<p><u>Parallelogram method</u></p> <div style="display: flex; align-items: center; justify-content: center;">  <div style="margin-left: 10px;"> <p>8 months $A=4/12 \times 8/12 \times .5 = .111$</p> <p>4 months</p> </div> </div> <p>2014 rate level=$.111(1-.18)+(1-.111)=.98$ on-level factor=$(1-.18)/(.98)=.837$ earned prem at current rate level=$491.67 \times 500 \times 2 \times .837=411,528$</p> <p><u>Extension of exposure</u> earned prem at current rate level=$491.67 \times (1-.18) \times 500 \times 2=403,169$</p> <p>Extension of exposure is more appropriate because the parallelogram method assumes uniform writing throughout the year which is not satisfied here.</p>	
EXAMINER'S REPORT	
Part a	
<p>Candidates were expected to know how to calculate written exposure and earned exposures for 6-month policies.</p> <p>Candidates generally scored well on this part. The most common mistake was not taking half of the exposures to account for the 6-month term since exposure defined as one car-year.</p>	
Part b	
<p>Candidates were expected to calculate the 2014 earned premium at the current rate level using the parallelogram method. Some candidates had difficulty with this part. Common mistakes included not calculating the area associated with a particular rate level correctly and not annualizing the premium.</p>	

EXAM 5 SAMPLE ANSWERS AND EXAMINER'S REPORT

Candidates were expected to calculate the 2014 earned premium at the current rate level using the extension of exposure method. Candidates generally scored well on this part. One common mistake was not annualizing the premium.

Candidates were expected to select the extension of exposure method by knowing which assumption of the parallelogram method did not hold true. Many candidates performed well on this part. The most common error was identifying the method but not explaining why it was more appropriate.