6. (2.25 points)

Given the following for an individual state:

Selected Loss and ALAE Ratio	105.5%
Expense and ULAE Ratio	30.7%
Profit and Contingency Provision	-5.0%
Number of Reported Claims	109
Claims Required for Full Credibility Standard	683
Countrywide Indicated Rate Change	8.5%

- Partial credibility is determined using the square root rule.

a. (1 point)

Calculate the credibility-weighted indicated rate change for this state.

b. (0.25 point)

Briefly describe a situation where the given profit and contingency provision may be appropriate.

c. (1 point)

Discuss two situations where the pure premium method is preferable to the loss ratio method for calculating an indicated rate change.

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QUESTION 6

TOTAL POINT VALUE: 2.25	**LEARNING OBJECTIVE(S): A4, A5**

SAMPLE ANSWERS

Part a: 1 point

Sample 1

Credibility = √(109/683) = 39.95%
Complement of credibility = 8.5% (countrywide indication)
Rate Indication (*assume all expense variable):
105.5%/(1-30.7%+5%) – 1 = 41.99%
Credibility-weighted Indicated Rate Change:
41.99% x 39.95% + (1-39.95%) x 8.5% = 21.88%

Sample 2

Cred = z = √(109/683) = 39.9%
Ind Rate Chg = (105.5% + 30.7%)/(1 – (-5%)) – 1 = 29.7%
*assume expense/ulae ratio is fixed
Cred-Wtd Ind Rate Chg = (29.7%)(39.9%) + (8.5%)(1-39.9%) = 16.97%

Part b: 0.25 point

- For a long-tailed line of business where there is a significant amount of investment income
- Insurer has a negative profit target when they want to be competitive and gain new business hoping they will make profit in later years.
- If the company is forced by regulation to set the profit at this amount

Part c: 1 point

1. When it is a new business, pure premium method is preferable to loss ratio method, since there is no existing rate.
2. When new rating variables are introduced and they are not available in historical dataset. Thus, it's impossible to on-level the premium.

EXAMINER'S REPORT

Candidates were expected to know how to calculate a basic rate level indication, as well as understand the differences between the loss ratio method and pure premium method.

This question was straightforward, and most candidates performed well on this question.

Part a

Candidates were expected to know how to calculate a credibility weighted rate level indication using the loss ratio method.

Common mistakes included:

- Assuming all expenses were fixed, but not stating the assumption.
- Miscalculating credibility by forgetting to take the square root.

Part b

Candidates were expected to understand the purpose of the profit factor in the loss ratio method calculation, that the target profit is a choice made by the insurer, and why an insurer might choose to have a negative profit provision.

Some candidates made an assumption that profit was low for new business, because the losses and expenses will be high. This did not demonstrate understanding that the profit target is a choice made by the insurer.

Part c

Candidates were expected to know the differences between the pure premium method and the loss ratio method, and explain when it is appropriate to use each.

Common mistakes included:

- Stating that the pure premium method was preferable when exposures are readily available and well defined. While this is a requirement for using the pure premium method, it does not necessarily imply that the pure premium method would be better than the loss ratio method in that situation.
- Listing two reasons, where the second reason was just a restatement of the first reason, such as stating that new rating variables were not in the history and subsequently stating that new rating variables were not included in the existing rate.