

# RISK POOLING CLASS PROBLEM

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1. Consider an insurer which has sold 5 *independent* and *identically* distributed insurance policies, each having an expected loss of \$1,000 and a standard deviation of \$1,000. Furthermore, also assume that losses are *normally* distributed. Calculate i) the expected value and standard deviation of the insurer's average loss distribution, and ii) the probability that the loss on an average policy will exceed \$1,500.
2. Suppose the insurer described above decides to sell 10 such policies rather than just 5. Perform the same calculations as in the previous bullet point and explain the difference in your results.
3. Suppose the insurer described above decides to sell 10 policies but now believes that the correlation between policies is .1 rather than zero. Compare your results with those obtained in the previous bullet point and explain any differences.