

The aim of this work is the calculation of compound distributions by using the algorithm known as the Panjer recursion. This algorithm is limited to discrete distributions and the $(a, b, 0)$ and $(a, b, 1)$ classes of distributions. The thesis shows which distributions are members of these classes. The thesis then describes the discretization of continuous distributions by using the rounding method and the method of local moments matching; everything is explained on examples. These methods are then applied to the calculation of the premium for model of excess of loss reinsurance with reinstatements (XL-reinsurance with reinstatements), and the calculating the solvency capital requirement. Numerical illustrations are included.