Week 12:

(1) Assume for a 3-year select group, $p_{[x]+k} = 0.95 \times p_{x+k}$. Using LTAM table and an interest rate of 5%, compute $s_{[20]:\overline{2}|}$.

Solution:

$$s_{[20]:\overline{2}|} = \frac{a_{[20]:\overline{2}|}}{v^2 {}_2p_{[20]}} = \frac{\ddot{a}_{[20]:\overline{2}|} - 1 + {}_2E_{[20]}}{v^2 \times p_{[20]} \times p_{[20]+1}}$$

$$= \frac{\sum_{k=0}^{2-1} v^k {}_kp_{[20]} - 1 + v^2 {}_2p_{[20]}}{v^2 \times p_{[20]} \times p_{[20]+1}}$$

$$= \frac{1 + vp_{[20]} - 1 + v^2 \times p_{[20]} \times p_{[20]+1}}{v^2 \times p_{[20]} \times p_{[20]+1}}$$

$$= \frac{vp_{[20]} + v^2 \times p_{[20]} \times p_{[20]+1}}{v^2 \times p_{[20]} \times p_{[20]+1}}$$

$$= \frac{1 + v \times p_{[20]+1}}{v \times p_{[20]+1}}$$

$$= \frac{1}{}$$