| | Present Value | Expected Present Value (Actuarial Value) |
|---|---|---|
| WL annuity-due | $\ddot{a}_{\overline{K_x+1}\rceil} = 1 + v + .. + v^{K_x} = \frac{1-v^{K_x+1}}{d}$ | $\ddot{a}_x = \sum_{t=0}^{\infty} v^t \ {}_tp_x = \sum_{k=0}^{\infty} \ddot{a}_{\overline{k+1}\rceil} \ {}_{k\vert}q_x$ |
| Term annuity-due | $\ddot{a}_{\overline{\min(K_x+1,n)}\rceil} = 1 + v + .. + v^{\min(K_x+1,n)} = \frac{1-v^{\min(K_x+1,n)}}{d}$ | $\ddot{a}_{x:\overline{n}\rceil} = \sum_{t=0}^{n-1} v^t \ {}_tp_x = \sum_{t=0}^{n-1} \ddot{a}_{\overline{k+1}\rceil} \ {}_{k\vert}q_x + {}_np_x\ddot{a}_{\overline{n}\rceil}$ |
| WL immediate annuity | $a_{\overline{K_x}\rceil} = v + v^2 .. + v^{K_x} = \frac{1-v^{K_x}}{i}$ | $a_x = \sum_{t=1}^{\infty} v^t \ {}_tp_x = \sum_{k=0}^{\infty} a_{\overline{k}\rceil} \ {}_{k\vert}q_x = \ddot{a}_x - 1$ |
| $n$-term immediate annuity | $a_{\overline{\min(K_x,n)}\rceil} = v + .. + v^{\min(K_x,n)} = \frac{1-v^{\min(K_x,n)}}{d}$ | $a_{x:\overline{n}\rceil} = \sum_{t=1}^{n} v^t \ {}_tp_x = \ddot{a}_{x:\overline{n}\rceil} - 1 + v^n \ {}_np_x$ |
| WL 1/mthly annuity due | $\ddot{a}^{(m)}_{\overline{K_x^{(m)}+\frac{1}{m}}\rceil} = \frac{1}{m} \sum_{t=0}^{mK_x^{(m)}} v^{\frac{k}{m}} = \frac{1-v^{mK_x^m+\frac{1}{m}}}{d^{(m)}}$ | $\ddot{a}_x^{(m)} = \frac{1}{m} \sum_{t=0}^{\infty} v^{t/m} \ {}_{\frac{t}{m}}p_x = a_x^{(m)} + \frac{1}{m}$ |
| $n$ -term 1/mthly annuity due | $\ddot{a}^{(m)}_{\overline{\min(K_x^{(m)}+\frac{1}{m},n)}\rceil} = \frac{1}{m} \sum_{t=0}^{\min\left(mK_x^{(m)},n\right)} v^{\frac{k}{m}} = \frac{1-v^{\min\left(mK_x^m+\frac{1}{m},n\right)}}{d^{(m)}}$ | $\ddot{a}^{(m)}_{x:\overline{n}\rceil} = \frac{1}{m} \sum_{t=0}^{mn-1} v^{t/m} \ {}_{\frac{t}{m}}p_x = a^{(m)}_{x:\overline{x}\rceil} + \frac{1}{m}\left(1 - v^n_n p_x\right)$ |
| Deferred annuity due | | ${}_{u\vert}\ddot{a}_x = \ddot{a}_x - \ddot{a}_{x:\overline{n}\rceil}$ |