RENDAS ANTECIPADAS — RENDAS POSTECIPADAS

RENDAS VITALÍCIAS ANUAL CONSTANTES

RENDAS ANTECIPADAS	RENDAS POSTECIPADAS
$\ddot{a}_x = \frac{N_x}{D_x}$	$a_x = \frac{N_{x+1}}{D_x}$
${}_{m/}\ddot{a}_x = \frac{N_{x+m}}{D_x}$	${}_{m/}a_x = \frac{N_{x+m+1}}{D_x}$
$\ddot{a}_{x:\overline{n}\|} = \frac{N_x - N_{x+n}}{D_x}$	$a_{x:\overline{n}\|} = \frac{N_{x+1} - N_{x+n+1}}{D_x}$
${}_{m/}\ddot{a}_{x:\overline{n}\|} = \frac{N_{x+m} - N_{x+m+n}}{D_x}$	${}_{m/}a_{x:\overline{n}\|} = \frac{N_{x+m+1} - N_{x+m+n+1}}{D_x}$

RENDAS VITALÍCIAS ANUAL CRESCESTE EM UNIDADE

RENDAS ANTECIPADAS	RENDAS POSTECIPADAS
$(I\ddot{a})_x = \frac{S_x}{D_x}$	$(Ia)_x = \frac{S_{x+1}}{D_x}$
$(I_{m/}\ddot{a})_x = \frac{S_{x+m}}{D_x}$	$(I_{m/}a)_x = \frac{S_{x+m+1}}{D_x}$
$(I\ddot{a})_{x:\overline{n}\|} = \frac{S_x - S_{x+n} - n.N_{x+n}}{D_x}$	$(Ia)_{x:\overline{n}\|} = \frac{S_{x+1} - S_{x+n+1} - n.N_{x+n+1}}{D_x}$
$(I_{m/}\ddot{a})_{x:\overline{n}\|} = \frac{S_{x+m} - S_{x+m+n} - n.N_{x+m+n}}{D_x}$	$(I_{m/}a)_{x:\overline{n}\|} = \frac{S_{x+m+1} - S_{x+m+n+1} - n.N_{x+m+n+1}}{D_x}$

RENDA VITALÍCIA ANUAL CRESCENTE EM P.A

RENDAS ANTECIPADAS	RENDAS POSTECIPADAS
$(V\ddot{a})_x^{\alpha} = (1-\alpha)\ddot{a}_x + \alpha\,(I\ddot{a})_x$	$(Va)_x^{\alpha} = (1-\alpha)a_x + \alpha\,(Ia)_x$
$(V_{m/}\ddot{a})_x^{\alpha} = (1-\alpha)_{m/}\ddot{a}_x + \alpha\,(I_{m/}\ddot{a})_x$	$(V_{m/}a)_x^{\alpha} = (1-\alpha)_{m/}a_x + \alpha\,(I_{m/}a)_x$
$(V\ddot{a})_{x:\overline{n}\|}^{\alpha} = (1-\alpha)\ddot{a}_{x:\overline{n}\|} + \alpha\,(I\ddot{a})_{x:\overline{n}\|}$	$(Va)_{x:\overline{n}\|}^{\alpha} = (1-\alpha)a_{x:\overline{n}\|} + \alpha\,(Ia)_{x:\overline{n}\|}$
$(V_{m/}\ddot{a})_{x:\overline{n}\|}^{\alpha} = (1-\alpha)_{m/}\ddot{a}_{x:\overline{n}\|} + \alpha\,(I_{m/}\ddot{a})_{x:\overline{n}\|}$	$(V_{m/}a)_{x:\overline{n}\|}^{\alpha} = (1-\alpha)_{m/}a_{x:\overline{n}\|} + \alpha\,(I_{m/}a)_{x:\overline{n}\|}$

RERNDA VITALÍCIA FRACIONADA

RENDAS ANTECIPADAS	RENDAS POSTECIPADAS
$\ddot{a}_x^{(K)} = \ddot{a}_x - \frac{K-1}{2K}$	$a_x^{(K)} = a_x + \frac{K-1}{2K}$
${}_{m/}\ddot{a}_x^{(K)} = {}_{m/}\ddot{a}_x - \frac{K-1}{2K}.{}_mE_x$	${}_{m/}a_x^{(K)} = {}_{m/}a_x + \frac{K-1}{2K}.{}_mE_x$
$\ddot{a}_{x:\overline{n}\|}^{(K)} = \ddot{a}_{x:\overline{n}\|} - \frac{K-1}{2K}.(1 - {}_mE_x)$	$a_{x:\overline{n}\|}^{(K)} = a_{x:\overline{n}\|} + \frac{K-1}{2K}.(1 - {}_mE_x)$
${}_{m/}\ddot{a}_{x:\overline{n}\|}^{(K)} = {}_{m/}\ddot{a}_{x:\overline{n}\|} - \frac{K-1}{2K}.({}_mE_x - {}_{m+n}E_x)$	${}_{m/}a_{x:\overline{n}\|}^{(K)} = {}_{m/}a_{x:\overline{n}\|} + \frac{K-1}{2K}.({}_mE_x - {}_{m+n}E_x)$

SEGURO PAGÁVEL POR MORTE

ANUAL CONSTANTE

$$A_x = \frac{M_x}{D_x}$$

$${}_{m/}A_x = \frac{M_{x+m}}{D_x}$$

$$A^{1}_{x:\overline{n}|} = \frac{M_x - M_{x+n}}{D_x}$$

$${}_{m/}A^{1}_{x:\overline{n}|} = \frac{M_{x+m} - M_{x+m+n}}{D_x}$$

$$A_{x:\overline{n}|} = \frac{M_x - M_{x+n} + D_{x+n}}{D_x}$$

$${}_{m/}A_{x:\overline{n}|} = \frac{M_{x+m} - M_{x+m+n} + D_{x+m+n}}{D_x}$$

ANUAL CRESCENTE NA UNIDADE

$$(IA)_x = \frac{R_x}{D_x}$$

$$(I_{m/}A)_x = \frac{R_{x+m}}{D_x}$$

$$(IA)^{1}_{x:\overline{n}|} = \frac{R_x - R_{x+n} - n.M_{x+n}}{D_x}$$

$$(I_{m/}A)^{1}_{x:\overline{n}|} = \frac{R_{x+m} - R_{x+m+n} - n.M_{x+m+n}}{D_x}$$

$$(IA)_{x:\overline{n}|} = \frac{R_x - R_{x+n} - n.M_{x+n} + n.D_{x+n}}{D_x}$$

$$(I_{m/}A)_{x:\overline{n}|} = \frac{R_{x+m} - R_{x+m+n} - n.M_{x+m+n} + n.D_{x+m+n}}{D_x}$$

ANUAL CRESCENTE EM P.A

$$(VA)^{\alpha}_x = (1-\alpha)A_x + \alpha\,(IA)_x$$

$$(V_{m/}A)^{\alpha}_x = (1-\alpha)_{m/}A_x + \alpha\,(I_{m/}A)_x$$

$$(VA)^{\alpha}_{\overset{1}{x:\overline{n}|}} = (1-\alpha)A^{1}_{x:\overline{n}|} + \alpha\,(IA)^{1}_{x:\overline{n}|}$$

$$(V_{m/}A)^{\alpha}_{\overset{1}{x:\overline{n}|}} = (1-\alpha)_{m/}A^{1}_{x:\overline{n}|} + \alpha\,(\mathrm{I}_{m/}A)^{1}_{x:\overline{n}|}$$

$$(VA)^{\alpha}_{x:\overline{n}|} = (1-\alpha)A_{x:\overline{n}|} + \alpha\,(IA)_{x:\overline{n}|}$$

$$(V_{m/}A)^{\alpha}_{x:\overline{n}|} = (1-\alpha)_{m/}A_{x:\overline{n}|} + \alpha\,(\mathrm{I}_{m/}A)_{x:\overline{n}|}$$

FRACIONADO

$$A^{(k)}_x = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}.A_x$$

$${}_{m/}A^{(k)}_x = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}.{}_{m/}A_x$$

$$A^{(k)}_{\overset{1}{x:\overline{n}|}} = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}.A^{1}_{x:\overline{n}|}$$

$${}_{m/}A^{(k)}_{\overset{1}{x:\overline{n}|}} = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}\,{}_{m/}A^{1}_{x:\overline{n}|}$$

$$A^{(k)}_{x:\overline{n}|} = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}.A_{x:\overline{n}|}$$

$${}_{m/}A)^{(k)}_{x:\overline{n}|} = \frac{i}{K\,\{(1+i)^{1/k} - 1\}}.{}_{m/}A_{x:\overline{n}|}$$

FÓRMULAS ÚTEIS PARA DE COMUTAÇÃO - TABUA/RELAÇÃO

$$D_x = v^x.l_x \qquad N_x = \sum_{h=0}^{\infty} D_{x+h} \qquad S_x = \sum_{h=0}^{\infty} N_{x+h}$$

$$C_x = v^{x+1}.d_x \qquad M_x = \sum_{h=0}^{\infty} C_{x+h} \qquad R_x = \sum_{h=0}^{\infty} M_{x+h}$$

$$C_x = v.D_x - D_{x+1} \qquad M_x = v.N_x - N_{x+1} \qquad R_x = v.S_x - S_{x+1}$$

$$N_x = v.D_x - N_{x+1} \qquad S_x = v.N_x - S_{x+1} \qquad M_x = v.C_x - M_{x+1} \qquad R_x = v.M_x - R_{x+1}$$