

Re-arranging the FVA formula

Solving for r requires Excel
or FINC

$$FVA = CF * \left(\frac{(1+r)^n - 1}{r} \right)$$

Solving for CF

$$FVA = CF * \left(\frac{(1+r)^n - 1}{r} \right) \quad * r$$

$$FVA * r = CF * ((1+r)^n - 1) \quad \text{divide by } ((1+r)^n - 1)$$

$$\frac{FVA * r}{((1+r)^n - 1)} = CF$$

$$CF = \frac{FVA * r}{((1+r)^n - 1)}$$

Solving for n

$$FVA = CF * \left(\frac{(1+r)^n - 1}{r} \right) \quad * r$$

$$FVA * r = CF * ((1+r)^n - 1) \quad /CF$$

$$\frac{FVA * r}{CF} = (1+r)^n - 1 \quad +1$$

$$1 + \frac{FVA * r}{CF} = (1+r)^n \quad \ln()$$

$$\ln\left(1 + \frac{FVA * r}{CF}\right) = \ln((1+r)^n) \quad \ln(x^y) = y * \ln(x)$$

$$\ln\left(\left(1 + \frac{FVA * r}{CF}\right)\right) = n * \ln(1+r) \quad / \ln(1+r)$$

$$\frac{\ln\left(1 + \frac{FVA * r}{CF}\right)}{\ln(1+r)} = n$$

$$n = \frac{\ln\left(1 + \frac{FVA * r}{CF}\right)}{\ln(1+r)}$$