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Valuation Engineering Formulas

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List of 17 Valuation Engineering Formulas

Valuation Engineering

1) Annual Installment for Sinking Fund

$$fx \quad I_a = S \cdot \frac{I_r}{(1 + I_r)^T - 1}$$

[Open Calculator !\[\]\(a870788d6ed9b8fd294b7654a8c8526b_img.jpg\)](#)

$$ex \quad 60.15038 = 8000 \cdot \frac{10}{(1 + 10)^3 - 1}$$

2) Annual Installment given Sinking Fund

$$fx \quad I_a = I_c \cdot S$$

[Open Calculator !\[\]\(c50c8b7b2cc2cf9ff925edec0ee94c0d_img.jpg\)](#)

$$ex \quad 600 = 0.075 \cdot 8000$$

3) Annual Sinking Fund using Sinking Fund Method

$$fx \quad S_a = \frac{I_r}{(1 + I_r)^x - 1}$$

[Open Calculator !\[\]\(f60b7a900783ac3fd531bfd9c111be6d_img.jpg\)](#)

$$ex \quad 0.083333 = \frac{10}{(1 + 10)^2 - 1}$$



4) Capitalized Value

$$fx \quad C_v = R_N \cdot Y$$

[Open Calculator !\[\]\(cbe80b694ebd74fcfe136a095b608235_img.jpg\)](#)

$$ex \quad 52800 = 4800 \cdot 11$$

5) Capitalized Value using Profit Based Valuation

$$fx \quad C_v = R_N \cdot Y$$

[Open Calculator !\[\]\(3e2231b1ad3ca8da8658228c00dd08e0_img.jpg\)](#)

$$ex \quad 52800 = 4800 \cdot 11$$

6) Coefficient of Annual Sinking Fund

$$fx \quad I_c = \frac{I_r}{(1 + I_r)^T - 1}$$

[Open Calculator !\[\]\(0d5ec72f61334709c3fc9450209b754f_img.jpg\)](#)

$$ex \quad 0.007519 = \frac{10}{(1 + 10)^3 - 1}$$

7) Coefficient of Annual Sinking Fund given Sinking Fund

$$fx \quad I_c = \frac{I_a}{S}$$

[Open Calculator !\[\]\(b64b40baaee5acddc1eab8538ba84754_img.jpg\)](#)

$$ex \quad 0.075 = \frac{600}{8000}$$



8) Gross Rent given Net Rent in Rental Method 

$$fx \quad R_G = R_N + O$$

[Open Calculator !\[\]\(e78f798d4ea5c530c9db49e7d26e6b95_img.jpg\)](#)

$$ex \quad 5320 = 4800 + 520$$

9) Net Income using Profit Based Valuation 

$$fx \quad NI = g_I - O$$

[Open Calculator !\[\]\(05be7c7a8995decd503647c99211f7c2_img.jpg\)](#)


$$ex \quad 200000 = 200520 - 520$$

10) Net Rent using Rental Method of Valuation 

$$fx \quad R_N = R_G - O$$

[Open Calculator !\[\]\(fe3aebe81acea8d45108cd2768939da7_img.jpg\)](#)

$$ex \quad 4800 = 5320 - 520$$

11) Outgoings using Rental Method 

$$fx \quad O = R_G - R_N$$

[Open Calculator !\[\]\(899d8b7697d64725bf017d3296cfcf1b_img.jpg\)](#)

$$ex \quad 520 = 5320 - 4800$$

12) Percentage Rate of Annual Depreciation 

$$fx \quad P = 1 - \left(\frac{S_c}{OC} \right)$$

[Open Calculator !\[\]\(40770d9ed6ed4f1222ebf89a1396e8b2_img.jpg\)](#)

$$ex \quad 0.9 = 1 - \left(\frac{350}{3500} \right)$$



13) Rate of Interest given Years Purchase

$$\text{fx } I_r = \frac{100}{Y}$$

[Open Calculator !\[\]\(e2376d476d06eb31946dc01a69a4403a_img.jpg\)](#)

$$\text{ex } 9.090909 = \frac{100}{11}$$

14) Rate of Sinking Fund given YP

$$\text{fx } I_s = \left(\frac{1}{Y} \right) - I_p$$

[Open Calculator !\[\]\(0b5e7e25e8775f7e7e80906ada4f0021_img.jpg\)](#)

$$\text{ex } 0.010909 = \left(\frac{1}{11} \right) - 0.08$$

15) Sinking Fund for Buildings

$$\text{fx } S = \frac{I_a}{I_c}$$

[Open Calculator !\[\]\(bd3b31712ad9bab5a241210fa6925cdd_img.jpg\)](#)

$$\text{ex } 8000 = \frac{600}{0.075}$$


16) Years Purchase

$$\text{fx } Y = \frac{100}{I_r}$$

[Open Calculator !\[\]\(7bc43b319a082987e20f7bf78f4bab80_img.jpg\)](#)

$$\text{ex } 10 = \frac{100}{10}$$



17) Years Purchase when Sinking Fund is Recovered 

$$fx \quad Y = \frac{1}{I_p + I_s}$$

[Open Calculator](#) 

$$ex \quad 11.0011 = \frac{1}{0.08 + 0.0109}$$



Variables Used

- C_v Capitalized Value
- g_I Gross Income
- I_a Annual Installment
- I_c Coefficient of Sinking Fund
- I_p Rate of Interest on Capital
- I_r Rate of Interest
- I_s Rate of Sinking Fund
- NI Net Income
- O Outgoings of Repairs
- OC Original Cost
- P Percentage Rate of Annual Depreciation
- R_G Gross Rent
- R_N Net Rental Income
- S Sinking Fund
- S_a Annual Sinking Fund
- S_c Scrap Value
- T Number of Years Money is Invested
- x Life of Asset in Years
- Y Years Purchase



Constants, Functions, Measurements used



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