



Operational and Financial Factors Formulas

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List of 13 Operational and Financial Factors Formulas

Operational and Financial Factors &

1) Expected Length of Non-Empty Queue

$$l = \frac{\mu}{\mu - \lambda_a}$$

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2) Expected Number of Customers in Queue

$$\mathbf{L}_{\mathrm{q}} = rac{\lambda_{\mathrm{a}}^2}{\mu \cdot (\mu - \lambda_{\mathrm{a}})}$$

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3) Expected Number of Customers in System

$$\mathbf{f}_{\mathbf{x}} \mathbf{L}_{\mathrm{s}} = rac{\lambda_{\mathrm{a}}}{\mu - \lambda_{\mathrm{a}}}$$

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Open Calculator 2

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4) Gross Margin Return on Investment

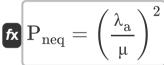
 $ext{ROI} = rac{ ext{GP}}{ ext{S}_o - ext{S}_c} \cdot 100$

$$\boxed{750 = \frac{7500}{\frac{5000 - 3000}{2}} \cdot 100}$$

5) New Number in Simplex Table G

 $N_{
m new} = O - {
m kr} \cdot rac{{
m kc}}{{
m k_n}}$





ex $15 = 19 - 6 \cdot \frac{2}{3}$

 $0.81 = \left(\frac{1800}{2000}\right)^2$

7) Number of Kanbans

$$N_{
m K} = rac{{
m D} \cdot {
m T} \cdot (1+{
m X})}{{
m C}}$$

ex
$$13000 = \frac{10000 \cdot 432000 \text{s} \cdot (1 + 25)}{100}$$









8) Perfect Order Measurement

$$\mathbf{M}_{\mathrm{po}} = \left(rac{\mathrm{O_{t}} - \mathrm{O_{e}}}{\mathrm{O_{t}}}
ight) \cdot 100$$

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Open Calculator

Open Calculator G

$$\boxed{72 = \left(\frac{50-14}{50}\right) \cdot 100}$$

9) Point r on Line

o) Tome Tome Eme C

 $= 32.5 = 8 + 3.5 \cdot 7$

fx $m r = a + \lambda \cdot n_{trials}$

0 · 7

10) Probability of Customers Exceeding Number

fx
$$P_{ex}=\lambda_a\cdot rac{k}{\mu}$$
 ex $11.7=1800\cdot rac{13}{2000}$

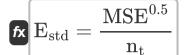
iber 🖰

11) Single Exponential Smoothing 🚰

fx
$$\mathrm{Ft} = lpha \cdot \mathrm{D_{t ext{-}1}} + (1-lpha) \cdot \mathrm{F_{t ext{-}1}}$$



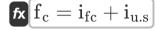
12) Standard Error (Pooled)



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$$\boxed{0.041833 = \frac{\left(0.7\right)^{0.5}}{20}}$$

13) Uniform Series Present Sum of Money



Open Calculator

$$\mathbf{ex} \ 33 = 18 + 15$$



Variables Used

- a Point a
- C Container Size
- D Demand per Year
- D_{f-1} Previous Observed Value
- E_{std} Standard Error
- **f**_c Annual_Devaluation_Rate
- F_{t-1} Previous Period Forecast
- Ft Smooth_Averaged_Forecast_for_Period_t
- GP Gross Profit
- ifc Rate_of_Return_Foreign_Currency
- i_{u.s} Rate_of_Return_USD
- **k** Exceeded Number Queuing Theory
- k_n Key Number of Simplex
- kc Key Column of Simplex
- kr Key Row of Simplex
- I Expected Length of Non-empty Queue
- L_q Expected Number of Customers in Queue
- L_s Expected Number of Customers in System
- M_{po} Perfect Order Measurement
- MSE Mean Square Error
- N_K Number of Kanban
- N_{new} New Number of Simplex Table





- n_t Observations
- n_{trials} Point b
- O Old Number of Simplex Table
- O_e Error Orders
- O_t Total Orders
- Pex Probability of Customers Exceeding Number
- Pneq Non-empty Queue Probability
- r Point r on Line
- ROI Return on Investment (ROI)
- Sc Closing Stock
- So Opening Stock
- T Lead Time (Second)
- X Safety Factor
- α Smoothing Constant
- λ Lambda
- λ_a Mean_Arrival_Rate
- µ Mean_Service_Rate



Constants, Functions, Measurements used

• Measurement: Time in Second (s)

Time Unit Conversion





Check other formula lists

- Industrial Parameters
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