


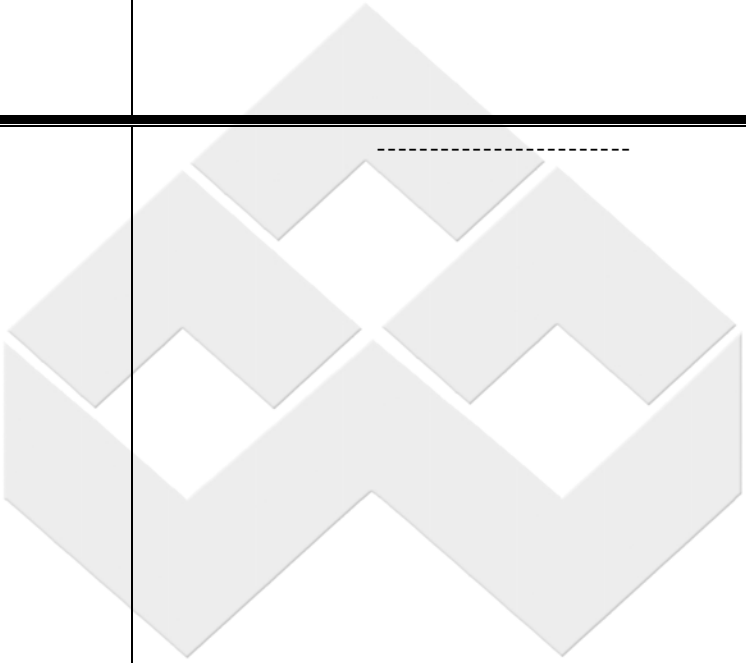
(DPMO)



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S.G.S.Co.

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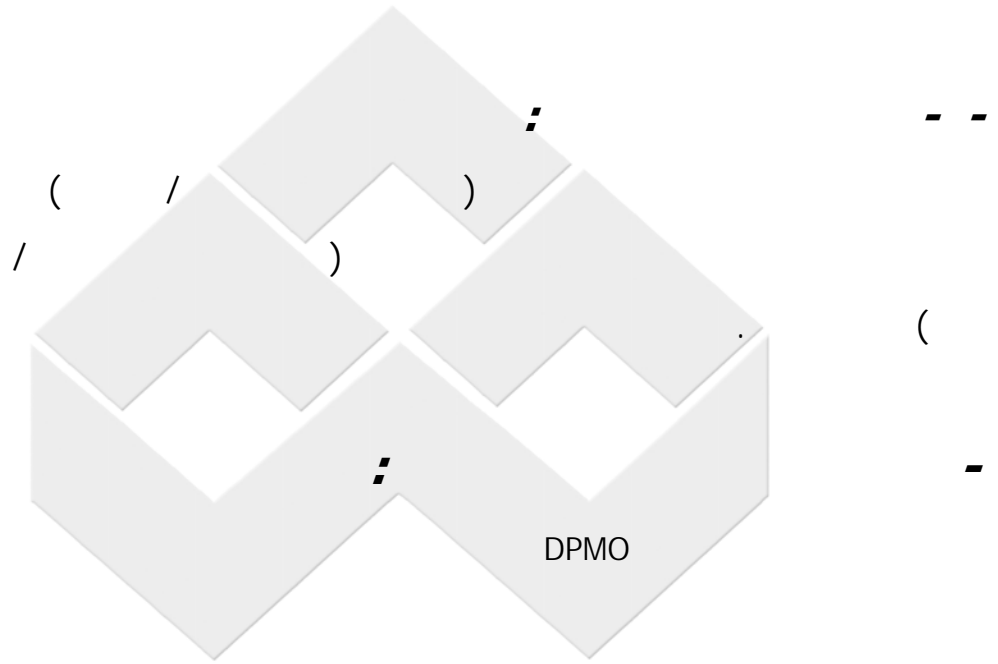


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(Defect per million opportunity) DPMO – -
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 S.G.S.Co. ()
: (Opportunity) - -

: (Active Opportunity) - -
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: (Passive Opportunity) - -
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: (Defect) - -



S.G.S.Co (Define)

(Define) : - -

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C B AR A

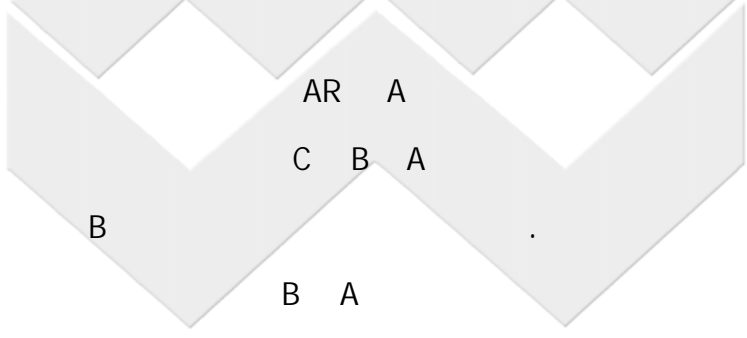
DPMO

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AR A
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(Defect Per Opportunity) DPO

(DPO)

S.G.S.Co.

DPO

DPO

yrt

$yrt = P () = e^{-dpo}$

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(a,b)

X

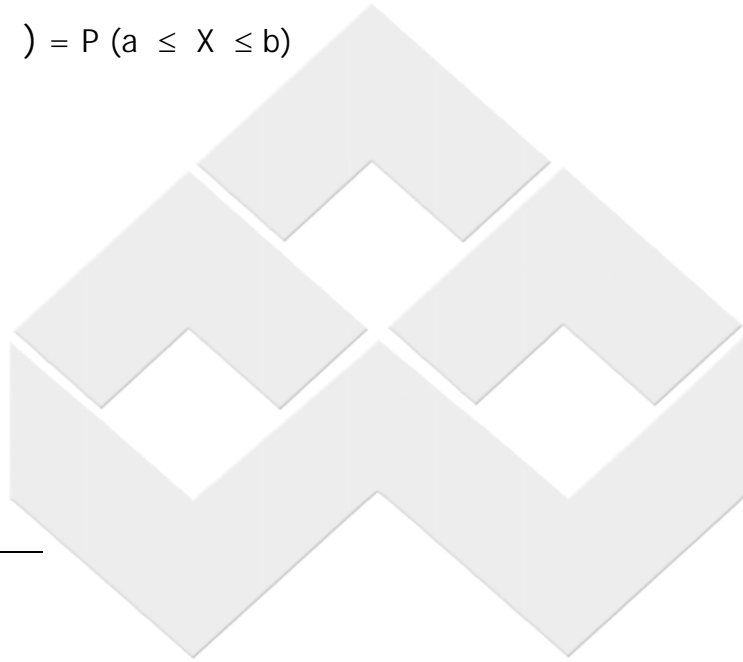
X

yrt

$$yrt = P (\quad) = P (a \leq X \leq b)$$

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n}$$

$$S = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}}$$



= N

= x_i

S.G.S.Co.

$$yrt = P (a \leq X \leq b) = P \left(\frac{a - \bar{x}}{S} \leq \frac{x - \bar{x}}{S} \leq \frac{b - \bar{x}}{S} \right) = P(\alpha \leq Z \leq \beta) = P(Z \leq \beta) - P(Z \leq \alpha)$$

yrt

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(a

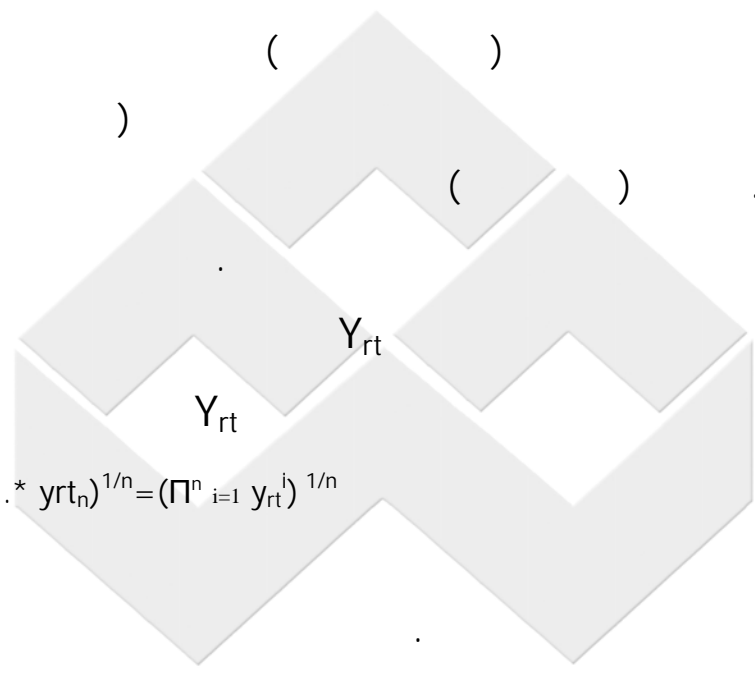
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Yrt

$$yrt = P (a \leq X \leq b) = P \left(\frac{x - \bar{x}}{S} \leq \frac{a - \bar{x}}{S} \right) = P(Z \leq \alpha)$$

$$y_{rt} = P(X \leq a) = P\left(\frac{\bar{x} - x}{s} \leq \frac{a - \bar{x}}{s}\right) = P(\alpha \leq Z) = 1 - P(Z \leq \alpha)$$



$$y_{rt} = (y_{rt1} * y_{rt2} * \dots * y_{rt_n})^{1/n} = (\prod_{i=1}^n y_{rt}^i)^{1/n}$$

$$DPMO = (1 - Y_{rt}) * 1.000.000$$

S.G.S.Co.

Y_{rt}

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Y_{rt}

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(Y_{rt})

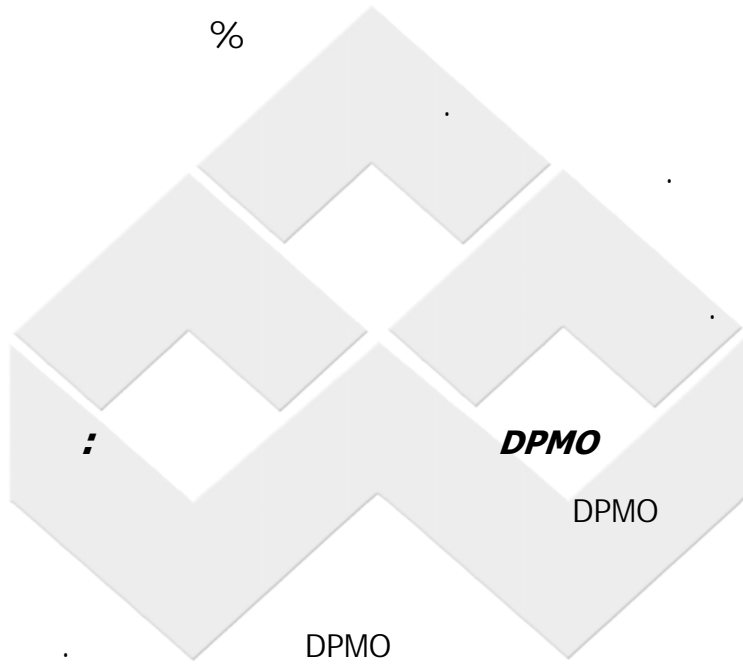
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Y_{rt}

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Y_{rt}

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y_{rt}

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DPMO

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A,B

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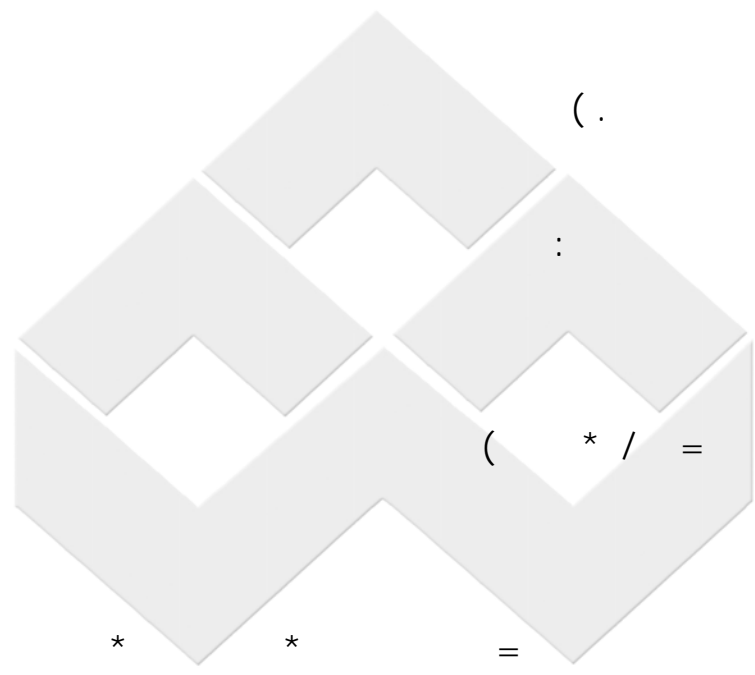
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S.G.S.Co.

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$$DPO = \frac{\quad}{\quad} = \frac{\quad}{\quad} = 0.075$$

$$Y_{rt} = e^{-dpo} = e^{-0.075} = 0.9277$$

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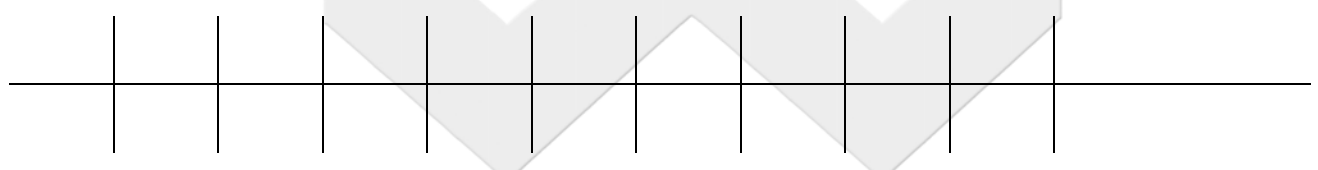
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$$DPO = \frac{\text{---}}{\text{---}} = \frac{\text{---}}{\text{---}} = 0.1$$

$$Y_{rt} = e^{-dpo} = e^{-0.1} = 0.9048$$



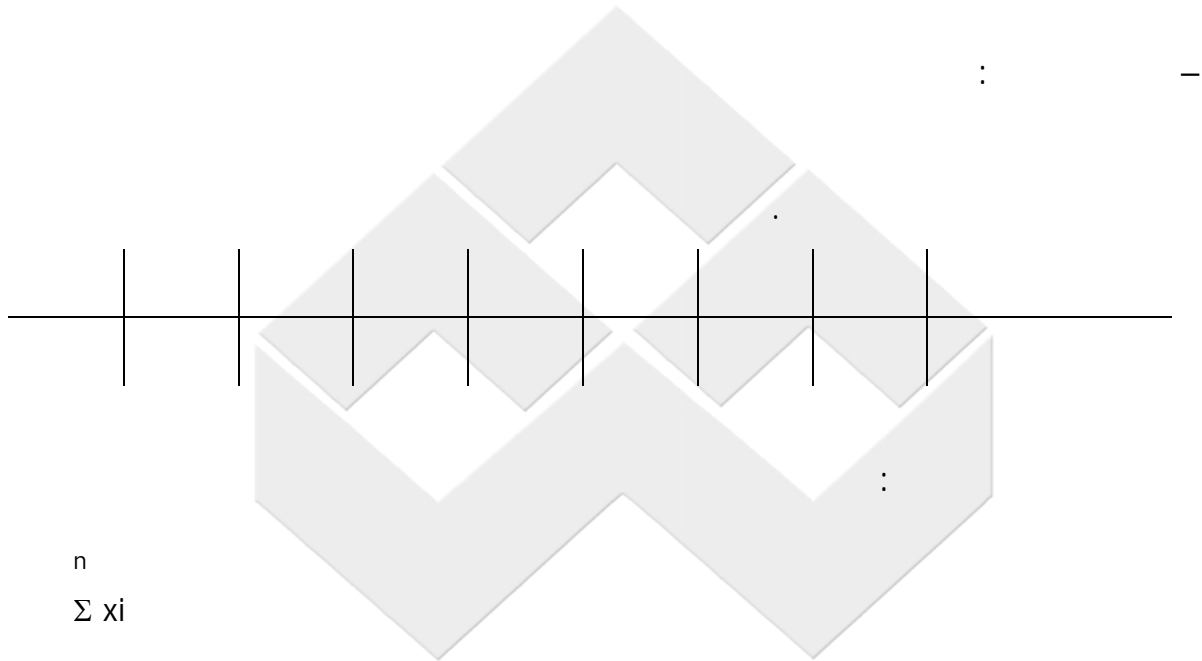
S.G.S.Co.

$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n} = \frac{430+420+400+390+470+440+420+410+410+410}{10} = 420$$

$$S = \sqrt{\frac{\sum_{i=1}^n (X_i - \bar{X})^2}{n-1}} = 22.61$$

$$y_{rt} = p(350 \leq X \leq 450) = P\left(\frac{350-420}{22/61} \leq \frac{X - \bar{X}}{S} \leq \frac{450-420}{22.61}\right)$$

$$= P(-3.1 \leq Z \leq 1.33) = P(Z \leq 1.33) - P(Z \leq -3.1) = 0.9066 - 0.0010 = 0.9056 = y_{rt} = 0.9056$$



$$\bar{X} = \frac{\sum_{i=1}^n x_i}{n}$$

S.G.S.Co.

$$S = \frac{\sqrt{\sum_{i=1}^n (X_i - \bar{X})^2}}{n-1} = 22.52$$

$$y_{rt} = p(295 \leq X \leq 305) = P\left(\frac{250-292.5}{22.52} \leq \frac{X - \bar{X}}{S} \leq \frac{305-292.5}{22.52}\right)$$

$$= P(0.11 \leq Z \leq 0.56) = P(Z \leq 0.56) - P(Z \leq 0.11) = 0.7123 - 0.5438 = 0.1685$$

$Y_{rt} = 0.1685$

$$y_{rt} = (Y_{rt})^{1/n} = (0.9277 * 0.9048 * 0.9056 * 0.1685)^{1/4} = 0.598239$$

DPMO

$$DPMO = (1 - Y_{rt}) * 10^6 = (1 - 0.598239) * 10^6 = 0.401761 * 10^6 = 401761$$

DPMO = 401761

S.G.S.Co.

