AFIFAH NOVIANI
G64170023

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- Fuzzy A (Harga) } Input
- Fuzzy B (Rasa) }
- Fuzzy C (Jumlah Produksi) → Output.

A

Fuzzy set Harga	Kurva trapezoidal
Mahal	1200, 1500, 2000, 2000
Sedang	600, 1000, 1500
Murah	0, 0, 500, 800

B

Fuzzy set Rasa	Kurva Trapezoidal
Enak	10, 15, 25, 25
Kurang Enak	5, 8, 12, 15
Tidak Enak	0, 0, 7, 12

Fuzzy set Jml Produksi	Kurva trapezoidal
Besar	60, 75, 100, 100
Sedang	20, 25, 50, 75
Kecil	0, 10, 15, 25

Rule (IF → THEN)

R1 = A sedang, B Enak → C besar

R2 = A murah → C besar

R3 : A sedang, B tidak enak → C sedang

R4 → A mahal, B kurang enak → C sedang

Diketahui A = 1400, B 15, nilai C ?

Jawab.

- A = 1400

μ (mahal) $= \frac{x-a}{b-a} = \frac{1400-1200}{1500-1200} = 0,67$

μ (sedang) $= \frac{c-x}{c-b} = \frac{1500-1400}{1500-1200} = 0,2.$

μ (murah) $= 0$

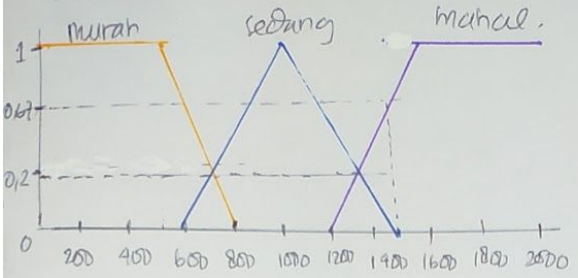
- B = 15

μ (enak) $= \frac{15-10}{15-10} = 1$

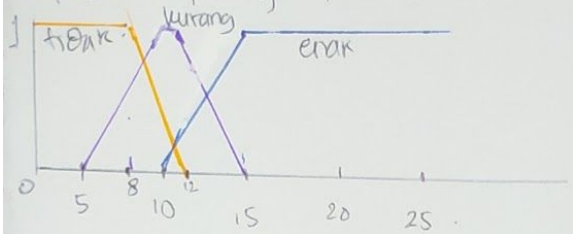
μ (kurang) $= \frac{15-15}{15-12} =$

μ (tidak) $= 0$

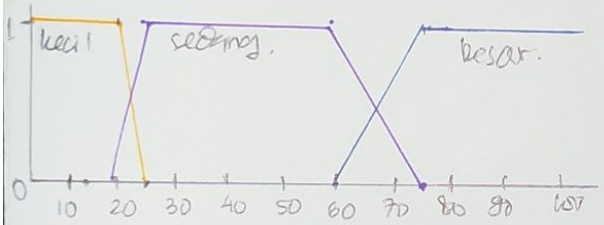
Representasi Fuzzy Input Harga (A)



Representasi Fuzzy Input Rasa (B)



Representasi Fuzzy jumlah produksi (C)



$R_1 = \min(0.2, 1)$

$\mu(\text{besar}) = \frac{x-a}{b-a} \Rightarrow 0{,}2 = \frac{x-60}{75-60}$

$x = 63.$

$R_2 = 0$

$\mu(\text{besar}) = \frac{x-a}{b-a} \Rightarrow 0 = \frac{x-60}{75-60}$

$x = 60$

$R_3 = \min(0.2, 0) = 0$

$\mu(\text{sedang}) = \frac{x-a}{b-a} \Rightarrow 0 = \frac{x-20}{25-20}$

$x = 20$

$\mu(\text{sedang}) = \frac{d-x}{d-c} \Rightarrow 0 = \frac{75-x}{75-50}$

$x = 75$

$R_4 = \min(0.87, 0) = 0$

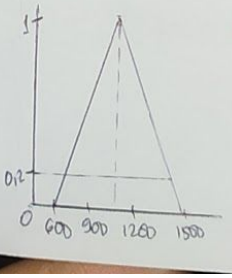
$\mu(\text{sedang}) = \frac{x-a}{b-a} \Rightarrow 0 = \frac{x-20}{25-20}$

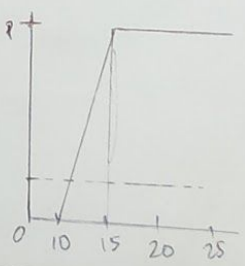
$x = 20$

$\mu(\text{sedang}) = \frac{d-x}{d-c} \Rightarrow 0 = \frac{75-x}{75-50}$

$x = 75$

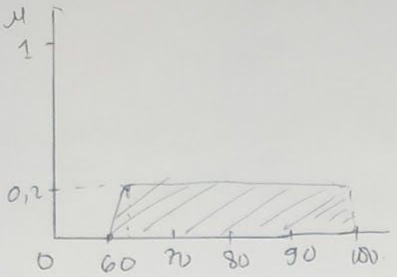
Rule	μ	x	Frek kumulatif
R1	0,2	63	0,2
R2	0	60	0,2.
R3	0	20	0,2
	0	75	0,2
R4	0	20	0,2
	0	75.	0,2.





Penalaran mamdani

LOM = SOM = MOM = 63 , $\mu = 0{,}2$.



bisector

$$\mu = \frac{\Sigma \mu}{2} = \frac{0{,}2 + 0 + 0 + 0 + 0 + 0}{2}$$

$$= 0{,}1 \quad \in [0, 0{,}2].$$

ambil yang teratas $\rightarrow 0{,}2$.

$z = 63$.

Defuzifikasi

- momen

$$M = \int_{60}^{100} (0.2)\, z\, dz = 0.1\, z^2 \Big]_{60}^{100}$$

$$= 1000 - 360$$

$$= 640$$

Luas daerah =

$$A = \frac{\{(100 - 63) + (100 - 60)\} \times 0.2}{2}$$

$$= 7{,}7$$

Titik pusat

$$z = \frac{640}{7.7} = 83{,}117.$$

Penalaran Tsukamoto

$$z = \frac{(0{,}2 \times 63) + (0 \times 60) + (0 \times 20) + (0 \times 75) + (0 \times 20) + (0 \times 75)}{0{,}2 + 0 + 0 + 0 + 0 + 0}$$

$$= 63.$$