

1

Tentukan nilai ekstrim dari fungsi $z = 2x^2 - 2xy + y^2 + 5x - 3y$!

$$= 4x - 2y + 5$$

$$f''(x) = 4$$

$$= 4x - 2y + 5$$

$$x = \frac{y}{2} - \frac{5}{4}$$

$$x = \frac{y}{2} - \frac{5}{4} \leftarrow \text{minimum lokal}$$

$$f\left(\frac{y}{2} - \frac{5}{4}\right) = 2\left(\frac{y}{2} - \frac{5}{4}\right)^2 - 2\left(\frac{y}{2} - \frac{5}{4}\right) \cdot y + y^2 + 5\left(\frac{y}{2} - \frac{5}{4}\right)$$

$$y = \frac{4y^2 - 4y - 25}{8}$$

Nilai Extreme dari $2x^2 - 2xy + y^2 + 5x - 3y$

$$\left(\frac{y}{2} - \frac{5}{4}, \frac{4y^2 - 4y - 25}{8}\right) = \text{minimum lokal}$$

2

Luas permukaan minimum dari kotak 32 m^3 .

$$\text{Luas permukaan balok} = 2x(pl + pt + lt)$$