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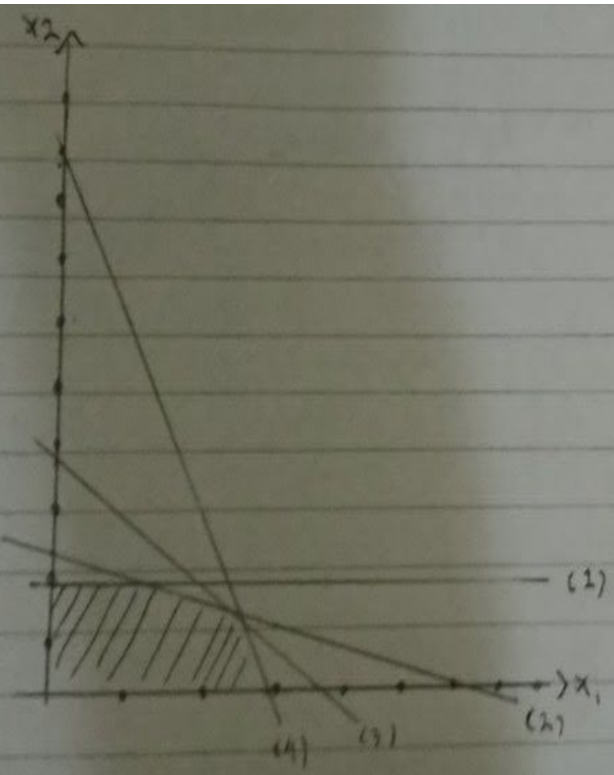
Tugas 1. Program linier

Maksimalkan $Z = 2x_1 + x_2$

Batasan
1. $x_2 \leq 10$
2. $2x_1 + 5x_2 \leq 60$
3. $x_1 + x_2 \leq 18$
4. $3x_1 + x_2 \leq 44$



2. $x_1 = 0 \rightarrow x_2 = 12$
   $x_2 = 0 \rightarrow x_1 = 30$
3. $x_1 = 0 \rightarrow x_2 = 18$
   $x_2 = 0 \rightarrow x_1 = 18$
4. $x_1 = 0 \rightarrow x_2 = 44$
   $x_2 = 0 \rightarrow x_1 = 14,66$

Titik Temu

• (2) & (2) $x_2 = 10$ (1)

$2x_1 + 5x_2 = 60$ (2)

$2x_1 + 50 = 60$

$2x_1 = 10$

$x_1 = 5$

$x_1 = 5 \quad x_2 = 10$

• (2) & (3) $2x_1 + 5x_2 = 60$ (2) $\rightarrow 2x_1 = 60 - 5x_2 \Leftrightarrow x_1 = 30 - \frac{5}{2}x_2 \rightarrow$ (3)

$x_1 + x_2 = 18$ (3) $\rightarrow (30 - \frac{5}{2}x_2) + x_2 = 18 \Leftrightarrow 60 - 5x_2 + 2x_2 = 36$

$\Leftrightarrow -5x_2 + 2x_2 = 36 - 60 \Leftrightarrow -3x_2 = -24 \Leftrightarrow x_2 = 8 \rightarrow$ (2)

$2x_1 + 5x_2 = 60$ (2) $\rightarrow 2x_1 + 40 = 60 \Leftrightarrow 2x_1 = 20 \Leftrightarrow x_1 = 10$

$x_1 = 10 \quad x_2 = 8$

• (3) & (4) $x_1 + x_2 = 18$ (3) $\rightarrow x_2 = 18 - x_1 \rightarrow$ (4)

$3x_1 + x_2 = 44$ (4) $\rightarrow 3x_1 + (18 - x_1) = 44 \Leftrightarrow 2x_1 = 26$

$\Leftrightarrow x_1 = 13 \rightarrow$ (3)

$x_1 + x_2 = 18$ (3) $\rightarrow 13 + x_2 = 18 \Leftrightarrow x_2 = 5$

$x_1 = 13 \quad x_2 = 5$

kemungkinan jawaban
$Z = 2x_1 + x_2$ (max)

x_1	x_2	Z
0	0	0
0	10	10
14,66	0	29,3
5	10	20
10	8	28
13	5	31

kemungkinan dengan jawaban max adalah $x_1 = 13$ dan $x_2 = 5$ dengan $Z = 31$