Nama: Revaldo. Putra A
Kelas : 2D3 ITB

1) Fungsi tujuan : maksimumkan : $Z = 8x_1 + 6x_2$ (Rp1000)
2) Fungsi Pembatas :
   2.1 bahan A : $4x_1 + 2x_2 \leq 60$
   2.2 bahan B : $2x_1 + 4x_2 \leq 48 x_1, x_2 \geq 0$
   dengan metode Simplek

⇒ Langkah 1

$Z = 8x_1 + 6x_2 \Rightarrow Z - 8x_1 - 6x_2 = 0$

$4x_1 + 2x_2 + x_3 = 60$

$2x_1 + 4x_2 + x_4 = 48$

⇒ Langkah 2

Variabel dasal	Z	x_1	x_2	x_3	x_4	Nk
Z	1	(-8)	-6	0	0	0
x_3	0	(4)	2	1	0	60
x_4	0	(2)	4	0	1	48

0 = kolom kunci

⇒ Langkah 3 : mencari baris kunci

Variabel dasar	Z	x_1	x_2	x_3	x_4	Nk	ket. (Index)
Z	1	-8	-6	0	0	0	
x_3	0	(4)	(2)	(1)	(0)	(60)	60:4 = 15 ∑ minimum
x_4	0	2	4	0	1	48	48:2 = 24

⇒ Langkah 4 : mengubah nilai

Variabel dasar	Z	x_1	x_2	x_3	x_4	Nk
Z	1	-8	-6	0	0	0
x_3	0	4	2	1	0	60
x_4	0	2	4	0	1	48
Z	1					
x_1	0	1	1/2	1/4	0	5
x_4	0					

=> Langkah 5 : mengubah nilai selain baris kunci

Rumus = baris baru = baris lama - [koefisien kolom kunci & nilai baris kunci].

baris Pertama = Z

$$\begin{array}{rrrrrr} & -8 & -6 & 0 & 0 & 0 \\ (-8) & 1 & 1/2 & 1/4 & 0 & 15 \\ \hline & 0 & -2 & 2 & 0 & 120 \end{array} -$$

Cara menghitung :

1. (-8) = -8

2 = -8 - a(-8)

= 0

baris ketiga (x_4)

$$\begin{array}{rrrrrr} & 2 & 4 & 0 & 1 & 48 \\ (2) & 1 & 1/2 & 1/4 & 0 & 15 \\ \hline & 0 & 3 & -1/2 & 1 & 18 \end{array} -$$

tabel baru

Variabel dasar	Z	x_1	x_2	x_3	x_4	NK
Z	1	0	(-2)	2	0	120
x_1	0	1	(1/2)	1/4	0	15
x_4	0	0	(3)	-1/2	1	18

=> Langkah 6 : mengubang di awal

Variabel dasar	Z	x_1	x_2	x_3	x_4	NK	Ket. (Index)
Z	1	0	(-2)	2	0	120	
x_1	0	1	(1/2)	1/4	0	15	15 : 1/2 : 30
x_4	0	0	(3)	-1/2	1	18	18 : 3 = 3
Z	1						
x_1	0						
x_2	0	0	1	-1/6	1/3	6	

baris Pertama (Z)

~~0 -2 2 0 120~~

~~0 1 -1/6 1/3~~ (-2) 0 1 -1/6 1/3 6 -

0 0 5/3 2/3 132

baris kedua (x_1)

$$\begin{array}{rrrrrr} & 1 & 1/2 & 1/4 & 0 & 15 \\ (1/2) & 0 & 1 & -1/6 & 1/3 & 6 \\ \hline & 1 & 0 & 1/3 & -1/6 & 12 \end{array} -$$

tabel baru

Variabel dasar	Z	x_1	x_2	x_3	x_4	Nilai
Z	1	0	0	5/3	2/3	132
x_1	0	1	0	1/3	-1/6	12
x_2	0	0	1	-1/6	1/3	6

$x_1 = 12$

$x_2 = 6$

Z maks = 132 x 1000

= 132.000