Exercise (1) Solution:

x_1: the number of monthly production of trucks type (A)

x_2: the number of monthly production of trucks type (B)

objetive function (Z)

(Max) $Z = 4000\,x_1 + 8000\,x_2$

Constraints:

Constraint of Engine workshop hours $1\,x_1 + 3\,x_2 \le 450$

Constraint of the bodies workshop hours $2\,x_1 + 1\,x_2 \le 350$

Constraint of assembly workshop hours $1\,x_1 + 1\,x_2 \le 200$

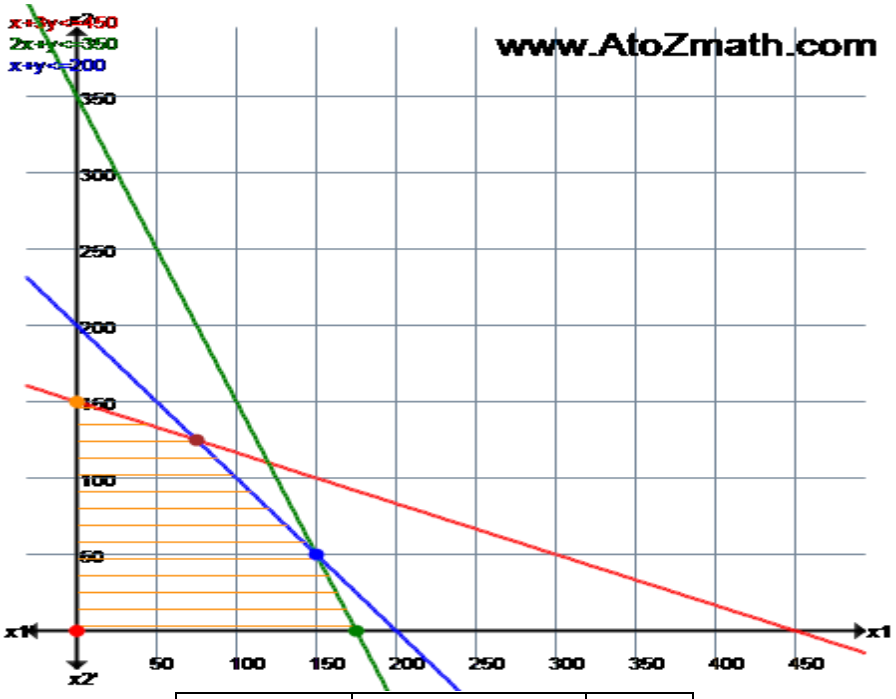
Non-negativity constraint $(x_1, x_1) \ge 0$

$1\,x_1 + 3\,x_2 = 450$		
x1	0	450
x2	150	0

$2\,x_1 + 1\,x_2 = 350$		
x1	0	175
x2	350	0

$1\,x_1 + 1\,x_2 = 200$		
x1	0	200
x2	200	0

Graphical Solution:



Extreme Point (x1,x2)	Objective function $Z=400x_1+800x_2$	value
O(0,0)	400(0)+800(0)	0
A(175,0)	400(175)+800(0)	70000
B(150,50)	400(150)+800(50)	100000
C(75,125)	400(75)+800(125)	130000
D(0,150)	400(0)+800(150)	120000

Exercise (2) Solution:

x_1: the number of aircraft type (A) that will be used

x_2: the number of aircraft type (B) that will be used

objetive function (Z)

(Min) $Z = 800000\ x_1 + 200000\ x_2$

Constraints:

Constraint of people's number	$200\ x_1 + 100\ x_2 \geq 1600$
Constraint of luggage's Weight	$6\ x_1 + 6\ x_2 \geq 90$
Constraint of Number of available Type A aircraft	$x_1 \leq 12$
Constraint of Number of available Type B aircraft	$x_2 \leq 9$
Non-negativity constraint	$(x1\ , x1) \geq 0$

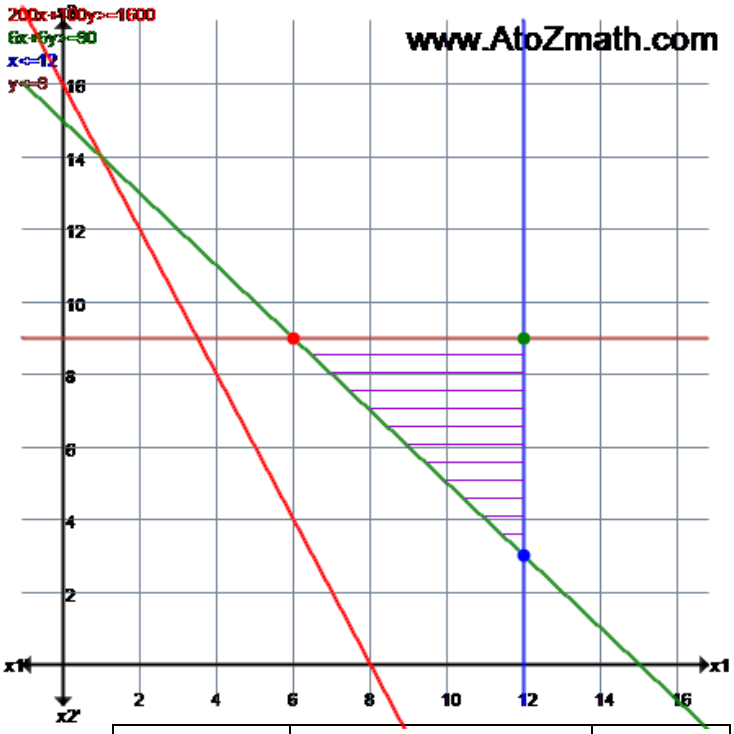
$200\ x_1 + 100\ x_2 = 1600$		
x1	0	8
x2	16	0

$6\ x_1 + 6\ x_2 = 90$		
x1	0	15
x2	15	0

$x_1 = 12$		
x1	12	12
x2	0	1

$x_2 = 9$		
x1	0	1
x2	9	9

Graphical Solution:



Extreme Point (x1,x2)	Objective function Z=800000x1+200000x2	value
A(6,9)	800000(6)+200000(9	6600000
B(12,9)	800000(12)+200000(9)	11400000
C(12,3)	800000(12)+200000(3)	10200000