

	x1	x2	x3			
	3	3	0			
objective	36	12	60	144		
constraints	2	1	3	9	<=	9
	1	0	3	3	<=	3

The problem has one optimal solution
 $x_1=3, x_2=3, x_3=0$. The optimal objective value is $z=144$.

a) $z = 36x_1 + 12x_2 + 60x_3 \rightarrow r$

subject to

$$2x_1 + x_2 + 3x_3 \leq 9$$

$$x_1 + 3x_3 \leq 3$$

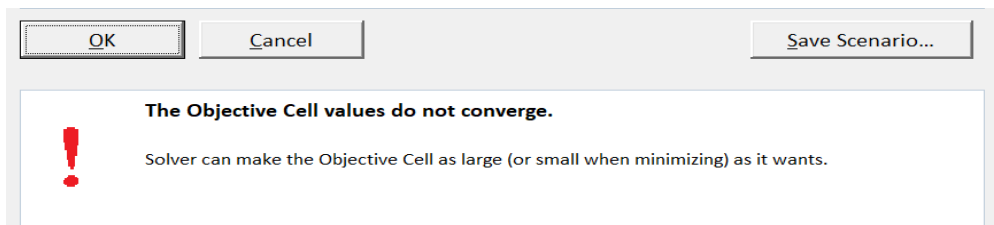
$$x_1, x_2, x_3 \geq 0$$

max.

	x1	x2		
	0	8		
objective	1	2	16	
constraints	1	-1	-8	<= 12
	-2	1	8	<= 8

b

The problem has no solution even if you can see some values.
The solver says:



$$) \ z = x_1 + 2x_2 \rightarrow \max.$$

subject to


$$x_1 - x_2 \leq 12$$

$$-2x_1 + x_2 \leq 8$$

$$x_1, x_2, \geq 0$$

	x1	x2			
	1	0			
objective	3	-1	3		
constraints	3	1	3	<=	3
	3	-4	3	>=	12
	-2	1	-2	>=	6

The problem has no solution.
 Solver is warning:


Solver could not find a feasible solution.
 Solver can not find a point for which all Constraints are satisfied.

c) $z = 3x_1 - x_2 \rightarrow \max.$

subject to

$$3x_1 + x_2 \leq 3$$

$$3x_1 - 4x_2 \geq 12$$

$$-2x_1 + x_2 \geq 6$$

$$x_1, x_2, \geq 0$$