

Sensitivity Analysis:**Shadow Prices:**

	Shadow Price	Low	High
Ex_capacity1	0	-1.00e +30	1.00e + 30
Ex_capacity2	0	-1.00e + 30	1.00e + 30
Ex_capacity3	0	-1.00e + 30	1.00e+ 30
Sq_footage1	12	1.12e + 04	1.389e+04
Sq_footage2	20	1.15e + 04	1.25e + 04
Sq_footage3	60	4.80e + 03	5.18e + 03
Sales1	0	-1.00e +30	1.00e + 30
Sales2	0	-1.00e + 30	1.00e + 30
Sales3	0	-1.00e + 30	1.00e+ 30
Percentage_P1_P2	-0.08	-2.50e + 04	2.50e + 04
Percentage_P1_P3	0.56	-1.25e+ 04	1.25e + 04
L1	0	-1.00e + 30	1.00e + 30
M1	0	-1.00e + 30	1.00e + 30
S1	-24	-2.22e + 02	1.11e + 02
L2	-40	-1.00e + 02	1.00e + 02
M2	0	-1.00e + 30	1.00e + 30
S2	0	-1.00e + 30	1.00e + 30
L3	-360	-2.00e + 01	2.50e + 01
M3	-120	-4.44e + 01	6.66e + 01
S3	0	-1.00e + 30	1.00e + 30

Reduced costs:

Decision Variables	Reduced cost from	Reduced cost till
L1	3.60e + 02	4.60e + 02
M1	3.45e + 02	4.20e + 02
S1	-1.00e + 30	3.24e + 02
L2	-1.00e + 30	4.60e + 02
M2	3.45e + 02	4.20e + 02
S3	2.52e + 02	3.24e + 02
L3	-1.00e+30	7.80e + 02
M3	-1.00e+30	4.80e + 02
S3	2.04e+02	1.00e + 30

Formulation for the dual of Weigelt Corporation:

Decision Variables:

$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9, y_{10}, y_{11}$

Objective function:

Min W : $750 y_1 + 900 y_2 + 450 y_3 + 13000 y_4 + 12000 y_5 + 5000 y_6 + 900 y_7 + 1200 y_8 + 750 y_9$

$y_1 + 20 y_4 + y_7 + 900 y_{10} + 450 y_{11} \geq 420$

$y_1 + 15 y_4 + y_8 + 900 y_{10} + 450 y_{11} \geq 360$

$y_1 + 12 y_4 + y_9 + 900 y_{10} + 450 y_{11} \geq 300$

$y_2 + 20 y_5 + y_7 - 750 y_{10} \geq 420;$

$$y_2 + 15 y_5 + y_8 - 750 y_{10} \geq 360;$$

$$y_2 + 12 y_5 + y_9 - 750 y_{10} \geq 300;$$

$$y_3 + 20 y_6 + y_7 - 750 y_{11} \geq 420;$$

$$y_3 + 15 y_6 + y_8 - 750 y_{11} \geq 360;$$

$$y_3 + 12 y_6 + y_9 - 750 y_{11} \geq 300;$$

$y_1, y_2, y_3, y_4, y_5, y_6, y_7, y_8, y_9 \geq 0$, y_{10}, y_{11} are unrestricted