

§6.3 (PART 2): SENSITIVITY ANALYSIS

- 1.] GIAPETTO'S WORKSHOP: Suppose x_1 and x_2 are the number of soldiers and trains, respectively, that Giapetto's produces and sells from his workshop. He sells each toy for a profit but is limited by two types of skilled labor hours: finishing (constraint 1) and carpentry (constraint 2). The third constraint is a demand constraint. The LP is below along with the optimal tableau.

Maximize Profit: $z = 3x_1 + 2x_2$

Subject to: $2x_1 + x_2 \leq 100$

$x_1 + x_2 \leq 80$

$x_1 \leq 40$

$x_1, x_2 \geq 0$

Row	Basic	z	x_1	x_2	s_1	s_2	s_3	RHS
0	z	1	0	0	1	1	0	180
1	x_1	0	1	0	1	-1	0	20
2	x_2	0	0	1	-1	2	0	60
3	s_3	0	0	0	-1	1	1	20

Suppose that Giapetto is considering manufacturing toy boats. A toy boat uses 2 carpentry hours and 1 finishing hour and the demand is unlimited.

a.) Reformulate the LP in standard form.

b.) If a toy boat contributes \$3.50 to profit, should Giapetto manufacture any toy boats?