

An Optimal Triangle Having A Simply Degenerate Vertex

Tableau 1:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_5	2	-5	3	4	1	0	6
x_6	7	3	8	-1	0	1	21
	-11	7	-14	-7	0	0	0

Tableau 2:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_3	$\frac{2}{3}$	$-\frac{5}{3}$	1	$\frac{4}{3}$	$\frac{1}{3}$	0	2
x_6	$\frac{5}{3}$	$\frac{49}{3}$	0	$-\frac{35}{3}$	$-\frac{8}{3}$	1	5
	$-\frac{5}{3}$	$-\frac{49}{3}$	0	$\frac{35}{3}$	$\frac{14}{3}$	0	28

A complete list of optimal basic feasible solutions follows.

Tableau 3:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_3	$\frac{41}{49}$	0	1	$\frac{1}{7}$	$\frac{3}{49}$	$\frac{5}{49}$	$\frac{123}{49}$
x_2	$\frac{5}{49}$	1	0	$-\frac{5}{7}$	$-\frac{8}{49}$	$\frac{3}{49}$	$\frac{15}{49}$
	0	0	0	0	2	1	33

Tableau 4:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_4	$\frac{41}{7}$	0	7	1	$\frac{3}{7}$	$\frac{5}{7}$	$\frac{123}{7}$
x_2	$\frac{30}{7}$	1	5	0	$\frac{1}{7}$	$\frac{4}{7}$	$\frac{90}{7}$
	0	0	0	0	2	1	33

The following are degenerate.

Tableau 5:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_1	1	0	$\frac{49}{41}$	$\frac{7}{41}$	$\frac{3}{41}$	$\frac{5}{41}$	3
x_2	0	1	$-\frac{5}{41}$	$-\frac{30}{41}$	$-\frac{7}{41}$	$\frac{2}{41}$	0
	0	0	0	0	2	1	33

Tableau 6:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_1	1	$\frac{49}{5}$	0	-7	$-\frac{8}{5}$	$\frac{3}{5}$	3
x_3	0	$-\frac{41}{5}$	1	6	$\frac{7}{5}$	$-\frac{2}{5}$	0
	0	0	0	0	2	1	33

Tableau 7:

	x_1	x_2	x_3	x_4	x_5	x_6	
x_1	1	$\frac{7}{30}$	$\frac{7}{6}$	0	$\frac{1}{30}$	$\frac{2}{15}$	3
x_4	0	$-\frac{41}{30}$	$\frac{1}{6}$	1	$\frac{7}{30}$	$-\frac{1}{15}$	0
	0	0	0	0	2	1	33

Dual Of “An Optimal Triangle Having A Simply Degenerate Vertex”

Tableau 1:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_3	-2	-7	1	0	0	0	-11
w_4	5	-3	0	1	0	0	7
w_5	-3	-8	0	0	1	0	-14
w_6	-4	1	0	0	0	1	-7
	6	21	0	0	0	0	0

Tableau 2:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_3	0	$-\frac{5}{3}$	1	0	$-\frac{2}{3}$	0	$-\frac{5}{3}$
w_4	0	$-\frac{49}{3}$	0	1	$\frac{5}{3}$	0	$-\frac{49}{3}$
w_1	1	$\frac{8}{3}$	0	0	$-\frac{1}{3}$	0	$\frac{14}{3}$
w_6	0	$\frac{35}{3}$	0	0	$-\frac{4}{3}$	1	$\frac{35}{3}$
	0	5	0	0	2	0	-28

A complete list of optimal basic feasible solutions follows.

Tableau 3:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_3	0	0	1	$-\frac{5}{49}$	$-\frac{41}{49}$	0	0
w_2	0	1	0	$-\frac{3}{49}$	$-\frac{5}{49}$	0	1
w_1	1	0	0	$\frac{8}{49}$	$-\frac{3}{49}$	0	2
w_6	0	0	0	$\frac{5}{7}$	$-\frac{1}{7}$	1	0
	0	0	0	$\frac{15}{49}$	$\frac{123}{49}$	0	-33

Tableau 4:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_3	0	0	1	$-\frac{30}{7}$	0	$-\frac{41}{7}$	0
w_2	0	1	0	$-\frac{4}{7}$	0	$-\frac{5}{7}$	1
w_1	1	0	0	$-\frac{1}{7}$	0	$-\frac{3}{7}$	2
w_5	0	0	0	-5	1	-7	0
	0	0	0	$\frac{90}{7}$	0	$\frac{123}{7}$	-33

Tableau 5:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_6	0	0	$-\frac{7}{41}$	$\frac{30}{41}$	0	1	0
w_2	0	1	$-\frac{5}{41}$	$-\frac{2}{41}$	0	0	1
w_1	1	0	$-\frac{3}{41}$	$\frac{7}{41}$	0	0	2
w_5	0	0	$-\frac{49}{41}$	$\frac{5}{41}$	1	0	0
	0	0	3	0	0	0	-33

Tableau 6:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_6	0	0	7	0	-6	1	0
w_2	0	1	$-\frac{3}{5}$	0	$\frac{2}{5}$	0	1
w_1	1	0	$\frac{8}{5}$	0	$-\frac{7}{5}$	0	2
w_4	0	0	$-\frac{49}{5}$	1	$\frac{41}{5}$	0	0
	0	0	3	0	0	0	-33

Tableau 7:

	w_1	w_2	w_3	w_4	w_5	w_6	
w_5	0	0	$-\frac{7}{6}$	0	1	$-\frac{1}{6}$	0
w_2	0	1	$-\frac{2}{15}$	0	0	$\frac{1}{15}$	1
w_1	1	0	$-\frac{1}{30}$	0	0	$-\frac{7}{30}$	2
w_4	0	0	$-\frac{7}{30}$	1	0	$\frac{41}{30}$	0
	0	0	3	0	0	0	-33