

e.g. [Dual Simplex Algo.]

min $+x_1 + 2x_2$
 s.t.

$$-x_1 + 2x_2 - x_3 + x_4 = -4$$

$$-2x_1 - x_2 + x_3 + x_5 = -6$$

$$x_1, \dots, x_5 \geq 0$$

Std. form after adding slack
 vars x_4 & x_5

↓

	0	1	2	0	0	0
$x_4 =$	-4	-1	2	-1	1	0
$x_5 =$	-6	-2	-1	1	0	1

Choice between x_4 & x_5

$$\frac{1}{|-2|} < \frac{2}{|-1|}$$

so col. 1 enters

↓

	-3	0	$\frac{3}{2}$	$\frac{1}{2}$	0	$\frac{1}{2}$
$x_4 =$	-1	0	$\frac{5}{2}$	$-\frac{3}{2}$	1	$-\frac{1}{2}$
$x_1 =$	3	1	$\frac{1}{2}$	$\frac{1}{2}$	0	$-\frac{1}{2}$

Choice between x_3 & x_5

$$\frac{\frac{1}{2}}{|-\frac{3}{2}|} < \frac{\frac{1}{2}}{|-\frac{1}{2}|}$$

	$-\frac{10}{3}$	0	$\frac{7}{3}$	0	$\frac{1}{3}$	$\frac{1}{3}$
$x_3 =$	$\frac{2}{3}$	0	$-\frac{5}{3}$	1	$-\frac{2}{3}$	$\frac{1}{3}$
$x_1 =$	$\frac{10}{3}$	1	$-\frac{1}{3}$	0	$-\frac{1}{3}$	$-\frac{1}{3}$

Optimality was maintained all along
 but now we have feasibility as well

$\therefore (\frac{10}{3}, 0, \frac{2}{3}, 0, 0)$ is the optimal primal soln.