

SIMPLEX

ExSimplex: choosebox with examples for Simplex	<div> <div>Examples For Simplex</div> <div> [[4 5 'Max'] [1 3 [[4 4 'Max'] [1 3 [[4 6 'Max'] [1 3 [[2 1 'Max'] [-1 2 [[0 '1/2' 0 'Max'] [[1 1 2 'Max'] [2 [[3 2 'Min'] [3 4 [[7 2 'Min'] [-1 2 </div> </div> <div> <div>CANCEL OK</div> </div>
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Ppropose: propose pivot element from tableau (0.9s)	<pre> 3: 1 1 0 0 1 700 2: 1/3 0 5/3 0 0 2500 1: 1 1/3 1/3 0 0 500 0 1/3 1/3 1 0 700 0 1/3 1/3 0 1 200 </pre>	<pre> 2: 1/3 0 5/3 0 1 200 1: 0 0 1/2 0 2/3 3200 0 1 1/2 0 1/2 400 0 0 1/2 1 1/2 200 1 0 1/2 0 1/2 300 </pre>
Pivot: pivot tableau (0.9s)	<pre> 1: CH. 1.3 Examp Simpl x+F +Tabl Pprop Pivot </pre>	<pre> Examp Simpl x+F +Tabl Pprop Pivot </pre>
xEval: evaluate x (0.9s) for primal problem	<pre> 3: 1 1 0 0 1 700 2: 1/3 0 5/3 0 0 2500 1: 1 1/3 1/3 0 0 500 0 1/3 1/3 1 0 700 0 1/3 1/3 0 1 200 </pre>	<pre> 2: y: [5/3 0 0] 1: 1/3 0 5/3 0 0 2500 1/3 1 1/3 0 0 500 0 1/3 1/3 1 0 700 0 1/3 1/3 0 1 200 </pre>
yEval: evaluate y (0.9s) for dual problem	<pre> Pprop Pivot xEVAL Rci RciJ HelpS </pre>	<pre> xEVAL xEVAL Extr +Dual Rci RciJ </pre>
Extr: get extremum from tableau	<pre> 3: extremum: 2500 2: 1/3 0 5/3 0 0 2500 1: 1 1/3 1/3 0 0 500 0 1/3 1/3 1 0 700 0 1/3 1/3 0 1 200 </pre>	<pre> 6: 200 800 600 Min 5: 1 4 3 3 2 2 3 4 4: Min: 600 3: y: [5/3 0 0] 2: y: [5/3 1/3 0] 1: y: [1 0 2/3] </pre>
Simplex: for minimum problem with several solutions (13s)	<pre> xEVAL xEVAL Extr +Dual Rci RciJ </pre>	<pre> Examp Simpl x+F +Tabl Pprop Pivot </pre>
Simplex: minimum problem (9s)	<pre> 6: 160 80 70 Min 5: 3 2 3 2 4: 4 2 1 3 3: Min: 120 2: y: [3/4 0 0] 1: y: [0 3/2 0] </pre>	<p>SIMPLEX ALGORITHM</p> <p>STANDARD MAXIMUM/MINIMUM PROBLEM</p> <p>$c_1x_1 + \dots + c_nx_n = \text{Max}(\text{Min})$</p> <p>$a_{11}x_1 + \dots + a_{1n}x_n \leq (\geq) b_1 \dots$</p> <p>$a_{m1}x_1 + \dots + a_{mn}x_n \leq (\geq) b_m$</p> <p>with $x_k, b_k \geq 0$</p> <p>INPUT AT HP49C/50: [C1]=</p> <p>[C1..cn Max(Min)]</p> <p>[a11..a1n b1] ..</p> <p>[am1..amn bm]</p>
HelpSIMPLEX: help	<pre> Examp Simpl x+F +Tabl Pprop Pivot GRAPH </pre>	<pre> GRAPH </pre>
HelpSIMPLEX: help	<pre> Examples _ + [C1] CHOOSEBOX Simplex [C1] + [C1] Max/Min: M x: [] SOLUTIONS IF THERE ARE SEVERAL SOLUTIONS x: [], THE GENERAL SOLUTION IS: x1...xi WITH xxi=1 TABLEAUS ARE STORED AS LIST IN 'Tableaus' x+F [C1] x: [] + [C1] [] val +Tableau [C1] + [C1] [C1] GRAPH </pre>	<pre> +Tableau [C1] + [C1] [C1] GENERATES TABLEAU FROM MAX PROBLEM. A Min PROBLEM IS CONVERTED TO MAX PROBLEM Ppropose [C1] + [C1] { r c } PROPOSE PIVOT POSITION c=Min(Ck), r=Min(bk/akj) UNTIL MAX IS REACHED Pivot [C1] { r c } + [C1] [C1] PIVOT WITH ELEMENT IN ROW r AND COLUMN c GRAPH </pre>
HelpSIMPLEX: help	<pre> Pivot [C1] { r c } + [C1] [C1] PIVOT WITH ELEMENT IN ROW r AND COLUMN c xEVAL [C1] + x: [C1] [C1] EVALUATE x FROM TABLEAU FOR MAXIMUM PROBLEM yEVAL [C1] + y: [C1] [C1] EVALUATE y FROM TABLEAU FOR MINIMUM PROBLEM Extr [C1] + Extr: M [C1] EXTREMUM FROM TABLEAU +Dual [C1] + [C1] CONVERTS TO GRAPH </pre>	<pre> +Dual [C1] + [C1] CONVERTS TO DUAL PROBLEM (Max+Min) Rci [C1] Factor i + [C1] MULTIPLY ELEMENTS IN ROW i BY Factor (=RCI) RciJ [C1] Factor i j + [C1] MULTIPLY ELEMENTS IN MATRIX ROW i BY Factor ADD ADD TO ROW j (=RCIJ) Tableaus LIST OF TABLEAUS CALCULATED BY Simplex STORED IN ACTUAL DIR GRAPH </pre>