** check different types of Primal to du

Algorithı

Method 6. Primal to Dual

Solve the Linear programming problem using Primal to dual conversion calculator

Type your linear programming problem

```
x32 <= 1
x34 <= 1
x41 <= 1
x42 <= 1
x43 <= 1
and x12,x13,x14,x21,x23,x24,x31,x32,x34,x41,x42,x43 >= 0
```

OR

Total Variables : 12 Total Constraints : 16 Generate

Min z = 12 x12 + 13 x13 + 14 x14 + 21 x21 + 23 x23 + 24 x24 + 31 x31 + 32 x32 + 34 x34 + 41 x41 + 4

Subject to constraints

0	x12 +	0	x13 +	0	x14 +	1	x21 +	0	x23 +	0	x24 +	1	x31 +	0	x32 +	0	x34 +	1	x41 +	0	x42 +
1	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	1	x32 +	0	x34 +	0	x41 +	1	x42 +
0	x12 +	1	x13 +	0	x14 +	0	x21 +	1	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	1	x14 +	0	x21 +	0	x23 +	1	x24 +	0	x31 +	0	x32 +	1	x34 +	0	x41 +	0	x42 +
1	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	1	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	1	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	1	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	1	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	1	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	1	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	1	x32 +	0	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	1	x34 +	0	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	1	x41 +	0	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	1	x42 +
0	x12 +	0	x13 +	0	x14 +	0	x21 +	0	x23 +	0	x24 +	0	x31 +	0	x32 +	0	x34 +	0	x41 +	0	x42 +

and x12,x13,x14,x21,x23,x24,x31,x32,x34,x41,x42,x43 >= 0 and unrestricted in sign x12, x13, x14, x21, x23, x24, x31, x32, x34, x41,

Mode : Auto

Find Random New

Solution Help

Solution

Find dual from primal conversion
MIN z = 12x12 + 13x13 + 14x14 + 21x21 + 23x23 + 24x24 + 31x31 + 32x32 + 34x34 + 41x41 + 42x42 + 43x43
subject to
x21 + x31 + x41 = 1
x12 + x32 + x42 = 1
x13 + x23 + x43 = 1
x14 + x24 + x34 = 1
x12 <= 1
x13 <= 1
x14 <= 1
x21 <= 1
x23 <= 1
x24 <= 1
x31 <= 1
x32 <= 1
x34 <= 1
x41 <= 1
x42 <= 1
x43 <= 1
and x12,x13,x14,x21,x23,x24,x31,x32,x34,x41,x42,x43 >= 0
(Answer Only)

Dual is (Solution stpes of Dual by **BigM method**)

MAX $z_y = y_1 + y_2 + y_3 + y_4 - y_5 - y_6 - y_7 - y_8 - y_9 - y_{10} - y_{11} - y_{12} - y_{13} - y_{14} - y_{15} - y_{16}$

subject to

$$\begin{aligned}
y_2 - y_5 &\le 12\\
y_3 - y_6 &\le 13\\
y_4 - y_7 &\le 14\\
y_1 - y_8 &\le 21\\
y_3 - y_9 &\le 23\\
y_4 - y_{10} &\le 24\\
y_1 - y_{11} &\le 31\\
y_2 - y_{12} &\le 32\\
y_4 - y_{13} &\le 34\\
y_1 - y_{14} &\le 41\\
y_2 - y_{15} &\le 42\\
y_3 - y_{16} &\le 43
\end{aligned}$$

and $y_5, y_6, y_7, y_8, y_9, y_{10}, y_{11}, y_{12}, y_{13}, y_{14}, y_{15}, y_{16} \ge 0; y_1, y_2, y_3, y_4$ unrestricted in sign

Solution provided by AtoZmath.com

Any wrong solution, solution improvement, feedback then **Submit Here**

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