Big M Method

Step 0: Std. Form.

Step 1: Add an artificial variable to every constraint that doesn't have a slack.

and add/subtract those with a large (M) penalty to the objective function.

Step 2: • Get Tableau

• Put tableau in canonical form
↳ use row operations to get a 0 on Row 0 of every artificial variable column.

Step 3: Apply the simplex as usual.

If unbounded rule applies at any iteration
⇒ original problem is unbounded.

If optimality test is met:

① at least one artificial with value > 0
⇒ original problem is infeasible

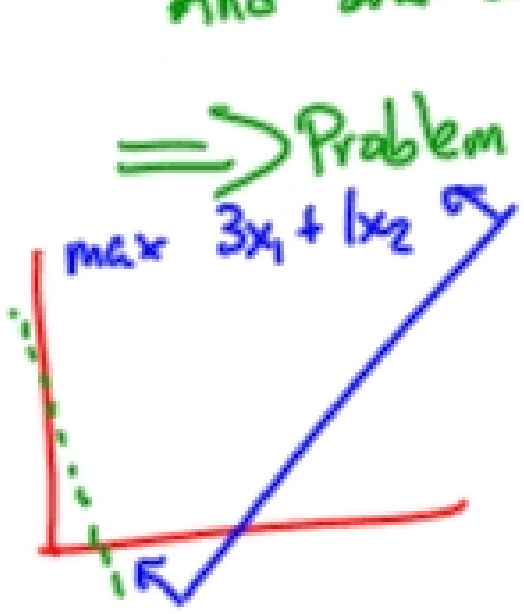
⑤ otherwise (all artificial's values = 0)
⇒ found an optimal solution for original problem
(mult. optimality test is the same as before)

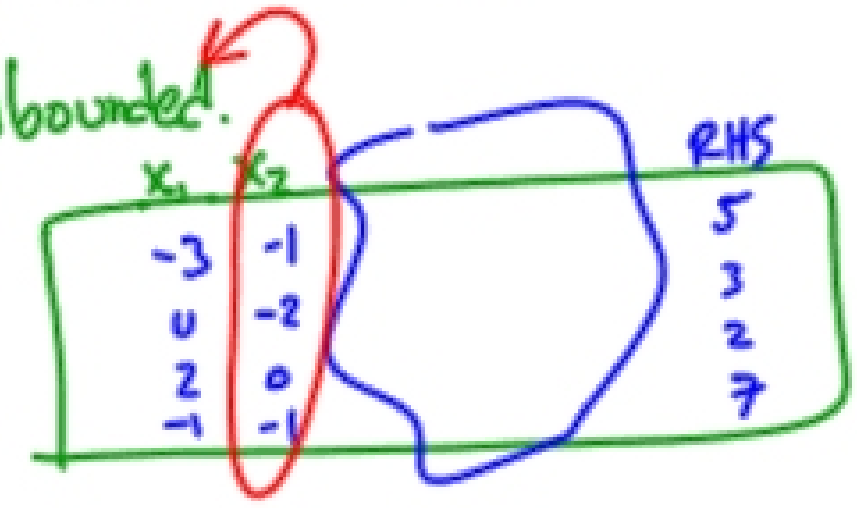
Unbounded test:

If at any iteration you get a tableau that has a column with a **negative** on row 0

And ~~strictly~~ all other numbers in that column are ≤ 0

$\Rightarrow$ Problem is unbounded.





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