Checklist

- Picking Pivot Column
- Picking Pivot Row
- Picking Pivot Point
- Performing Elementary Row Operations
- Important: Recognize when iteration process is complete
- Recognize when optimal feasible solution has been found
- Recognize infeasibility

Checklist

- State the solution of Tableau(i.e. for LP relaxation)
- (Recognize which variables necessarily have a value of zero).
- Recognize that LP optimality does not equate to IP optimality.

Addition of Constraints to Simplex Tableau

- Important: Construction of New Constraints further to branch and bound.
- This will involve adding new rows and columns to the tableau.
- Remark: Exam 2012 Q1 Part D is very useful to practice with in this regard.
- See next slide for exceedance constraints (i.e. $x_i \geq k$)

Branch and Bound : Encoding Exceedance Constraints

Adding an Exceedence Constraint to a Tableau

- Suppose we are to add a constraint such as $x_1 \geq 10$ to a simplex tableau
- We **subtract** an introduced slack variable (lets call it x_5).
- We can restate the constraint as

$$x_1 - x_5 = 10$$

(or equivalently $x_5 - x_1 = -10$)

- **BE CAREFUL WITH SIGNS!**

Branch and Bound : Encoding Exceedance Constraints

Inserting this into an expanded simplex tableau

...	...	...	...	...	...
...	...	...	...	...	...
10	1	0	0	0	-1

or equivalently

...	...	...	...	...	...
...	...	...	...	...	...
-10	-1	0	0	0	1