⚠ This quiz has been regraded; your score was affected.

IQ1 - Simplex

Due Sep 30 at 4:30pm **Points** 100 **Questions** 13
Available Sep 30 at 4pm - Sep 30 at 4:30pm 30 minutes **Time Limit** 15 Minutes

Instructions

This Individual Quiz has 13 multiple selection questions regarding Simplex, Big M and Two-Phase methods. Each Question is worth 7 or 10 points (for a total of 100 points).

The Quiz will test your ability to determine key aspects of an optimization problem using Tableau iterations, including: if a given Tableau corresponds to a basic solution or not, if a given basic solution is feasible or not, if the current solution corresponds to the optimal or not, determine the basic and non-basic variables of a given basic solution, determine the optimal value of the objective function, determine the variables that should enter or leave the basis in a Simplex iteration, and determine if the original problem is feasible or not using BigM or Two-Phase method.

This quiz was locked Sep 30 at 4:30pm.

Attempt History

	Attempt	Time	Score	Regraded
LATEST	Attempt 1	11 minutes	73 out of 100	80 out of 100

Score for this quiz: **80** out of 100
Submitted Sep 30 at 4:13pm
This attempt took 11 minutes.

Connect to the Zoom link below. Keep in mind that you need to connect through Responder Lockdown Browser (i.e., you won't be able to connect through the Zoom desktop app)

https://oklahoma.zoom.us/j/92100124305?pwd=S1oyNjVsNXMwSEJBZGtlZmFyZ1NDdz09 (https://oklahoma.zoom.us/j/92100124305?pwd=S1oyNjVsNXMwSEJBZGtlZmFyZ1NDdz09)

You need to be connected to Zoom the entire time while taking the Quiz

Question 1

7 / 7 pts

Is the following Tableau associated with a basic solution (that you can use to start a Simplex iteration)?

Basis	z	x1	x2	s1	s2	s3	sol
?	1	-1	-3	0	0	0	0
?	0	2	3	-1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	-1	7

- ○ Yes
- ◉ No

Correct!

Question 2

7 / 7 pts

Is the following Tableau associated with a basic solution (that you can use to start a Simplex iteration)?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	1	0	0	0
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

Yes

Correct!

No

Question 3

7 / 7 pts

Is the following Tableau associated with a basic solution (that you can use to start a Simplex iteration)?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	0	0	0	-2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

No

Correct!

Yes

Question 4

7 / 7 pts

In the following Tableau associated with a basic solution, which are the non-basic variables?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

x1 only

- x2 only
- Correct! x1 and x2
- x3, s1, and s2

Question 5

7 / 7 pts

In the following Tableau associated with a basic solution in a Minimization problem, is the current solution optimal?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

- No
- There is not enough information to decide
- Correct! Yes

Question 6

7 / 7 pts

In the following Tableau associated with a basic solution in a Maximization problem, is the current solution optimal?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10

?	0	4	3	0	0	1	7

- Yes
- Correct! No
- There is not enough information to decide

Question 7

7 / 7 pts

In the following Tableau associated with a basic solution, what is the current value of x1?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	1	3	0	1	0	10
?	0	4	3	0	0	1	7

- 2
- 10
- Correct! 0
- 5

Question 8

7 / 7 pts

In the following Tableau associated with a basic solution, what is the current value of x3?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	-3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	1	3	0	1	0	10
?	0	4	3	0	0	1	7

- 2
- 10

Correct!

- (●) 5
- 0

Question 9

7 / 7 pts

You are performing a Simplex iteration starting from the following Tableau associated with a basic solution in a Minimization problem. Which variable should enter the basis?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

- x1
- s1

Correct!

- (●) x2
- x3

Question 10 Original Score: 0 / 7 pts Regraded Score: 7 / 7 pts

This question has been regraded.

You are performing a Simplex iteration starting from the following Tableau associated with a basic solution in a Maximization problem. Which variable should leave the basis?

Basis	z	x1	x2	x3	s1	s2	sol
?	1	-1	3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10
?	0	4	3	0	0	1	7

- x3
- ou Answered: x1
- x2
- s1
- orrect Answer: s2

Question 11 10 / 10 pts

You are initializing a Maximization problem using Two-Phase Method. The Tableau below corresponds to a Simplex iteration in the 1st-Phase. According to it, was the original problem feasible?

Basis	z	x1	x2	s1	s2	r	sol
?	1	-1	-3	0	0	0	2
?	0	2	3	1	0	0	5
?	0	2	3	0	1	0	10

?	0	4	3	0	0	1	7

- Yes
- Further Simplex iterations are necessary before this can be known
- It is not possible to know with the provided information

Correct!

- No

Question 12

0 / 10 pts

You are solving a Maximization problem using Big-M Method. The Tableau below corresponds to a Simplex iteration. According to it, was the original problem feasible?

Basis	z	x1	x2	s1	r	sol
?	1	0	1.5	0.5	M-0.5	-2.5
?	0	1	1.5	-0.5	0.5	2.5

- It is not possible to know with the provided information
- Further Simplex iterations are necessary before this can be known

ou Answered

- No

orrect Answer

- Yes

Question 13

0 / 10 pts

You are solving a Maximization problem using Big-M Method. The Tableau below corresponds to a Simplex iteration. According to it, what is the optimal value of the objective function?

Basis	z	x1	x2	s1	r	sol
?	1	0	1.5	0.5	M-0.5	-2.5
?	0	1	1.5	-0.5	0.5	2.5

The original problem is not feasible, thus it does not have an optimal solution

orrect Answer

-2.5

ou Answered

Further Simplex iterations are necessary before this can be known

2.5

Quiz Score: **80** out of 100